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## ADDRESS.

### THE NEEDS AND RIGHTS OF OLD AGE.

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In this old Kentucky home of oratory, where the very atmosphere is charged with eloquence, where every individual from the moment he is able to articulate until the time when he tenders his resignation to the Great Ruler, is able to speak with the rhetorical skill of a Demosthenes, where the cattle on a thousand hills give forth their lowing in sounds of melody, it would be an error on my part to attempt to speak to you in an off-hand manner. I have instead elected to present to you a few thoughts jotted down at my leisure regarding a subject which I trust will not prove uninteresting. The topic which I have selected is "The Needs and Rights of Old Age."

One that is not far removed from the middle mile-post of life in discussing "The Needs and Rights of Old Age," can surely not be charged with indulgence in "special pleading," as the lawyers would say, but since every one of us, if we live long enough, will be classed within the ranks of the aged, self-interest is not entirely eliminated from the argument, for at the rate that the mile-posts are speeding by in this life's journey of ours, it will be but a short time until we will all be either old or dead. The statement can not be denied that each individual born into the world, who dies from any other cause than simple old age, or a gentle drifting away from life in so easy a way as to in no manner suggest death, has not received his just dues. In other words a proper death is inevitable and just as natural and physiologic as birth.

At the present rate of advancement the time will soon come when no one need die before his allotted time, save by accident. When we realize that the bulk of those who die in the world to-day, in spite of the progress of the sciences, die before they are five years old, we can see how much is left undone, and we are safe in saying that if the laws of health were properly observed and there was a proper application of the definite knowledge that we now have, all of these deaths prior to the age of five years need not occur at all.

#### CARELESS LIVING INVITES EARLY DEATH.

More and more we are having impressed upon us the fact that various microscopic forms of life, known as microbes, are present in the world here, there and everywhere, seeking whom they may devour, and as time advances and investigation is more complete, we find more and more that many diseases, particularly in the early periods of life, are dependent upon these micro-organisms. It is pretty clearly established that not only are the infectious diseases to which children are peculiarly susceptible dependent upon special germs, but many others are now found to come under the head, notably tuberculosis, the great "white plague," the disease from which one-seventh of all humankind die, the plague which would make the "black plague" of the ancient régime turn pale with envy. And yet we must remember that every individual, of no matter what age, would be able to resist this invading army, and the diseases resulting therefrom would be unknown, were it not for the fact that the victims have invited the enemy by their own indiscretions. In other words, all would be safe, even against infectious germs, did they observe the rules of health and not develop in themselves susceptibility to attack. Commencing then at an early period of life we are safe in saying that the individual is rendered susceptible to disease in general, and incompetent to cope with the dangers that surround him, only on account of not having husbanded his resources. By errors of diet, improper clothing, and the failure to correctly regulate the heat of the body, conditions are developed which invite disease and death, so we are safe in saying emphatically that from the beginning did we all eat proper food at the proper times in the proper way, and properly clothe ourselves and guard against inequalities of the temperature, "Othello's occupation" as related to the doctor would be gone.

This ideal condition can not be secured, but it may be approximated just in so far as hygienic laws are respected, while the individual progresses favorably along the lines of development, maintenance and repair. Let us recognize ourselves, then, as animated mechanisms, needing constant regulation; and to the extent of this regulation will we live healthy happy lives and progress to a delightful old age.

No person properly equipped in a proper state of health should want to die, nor should we have any other thought than that life is worth living, and that this is a beautiful world filled with very pleasant people.

We should all eat to live, certainly not live to eat, recognizing our bodies as a mechanical apparatus, an engine, as it were, with furnace attachments for the reception of fuel, said fuel to furnish force to run the mechanism. Let it be understood that this fuel should be properly selected and properly prepared for its proper consumption. Not only is this necessary, but in addition we must remember that there are no conditions yet developed in any force-giving mechanism where the fuel can be supplied in such perfect form as not to leave after its consumption a débris that is unavailable and which must be removed. The furnace must have removed from its interior the ashes of combustion which remain or we will have an interruption in its work. So with our bodies. The

alimentary canal, the chief part of which is generally supposed to be the stomach, but which is not, is the receptacle for fuel in the form of food. The excretory organs, the chief ones of which are the kidneys and the skin, remove the unused materials and, in addition, the products which accumulate from the waste resulting from the various activities going on within the body.

### CAUSE OF DISEASE IN MIDDLE LIFE.

It is becoming more and more evident every day that nearly all the diseases of middle and older life are interruptions in what is called metabolism, or tissue building, some break in the equilibrium of the process of nutrition. The food must be properly eaten, well digested and then assimilated, and the debris, together with those poisonous materials which accumulate in the system as the result of work upon the part of the various parts of the body, should be eliminated. Since the days of Garrod, the medical profession has appreciated to the fullest the fact that most of the diseases of adult and advanced life are gouty in their character. It is a popular idea that gout belongs only to the high liver and that it is generally manifested in one or both of the great toes, but it is exceptional for it to manifest itself in so localized a way. It is established that it is a universal condition, that it is dependent upon accumulation in the system of poisons (uric acid, etc.) that should be eliminated, and that said poisons may effect any one or all of the vital organs of the body. Particularly are the lining membranes of the heart and the blood vessels endangered, as they are similar in their construction to the lining membranes of the joints. Many so-called organic diseases, such as Bright's disease, cancer, diabetes and many of the distressing and dangerous diseases of the stomach are associated with the accumulation of uric acid in the system which is the disturbing factor in gout. At least these diseases are associated with the gouty condition, so that we are safe in saying that if we eat the proper food in the proper quantities and give due attention to its digestion and assimilation and have a thoughtful regard for the eliminative organs, the animated system of sewerage of the body, if you please, a ripe old age is sure to follow.

### ESSENTIAL ELEMENTS OF FOOD.

I feel that I am in deep water in approaching the subject of diet, for voluminous books could be written upon this alone, but it is safe to present a few general principles. We must keep in mind the chemic constituents of the body and the fourteen elements going to make up this combination, viz., oxygen, carbon, hydrogen, nitrogen, calcium, phosphorus, sulphur, sodium, chlorin, fluorin, iron, potassium, magnesium and silicon.

There are seventeen combinations of the fourteen elements of food: Water, gelatin, fat, phosphate of lime, albumin, carbonate of lime, fibrin, fluorid of calcium, phosphate of soda, phosphate of potash, phosphate of magnesium, chlorid of sodium, sulphate of soda, carbonate of soda, sulphate of potash, peroxid of iron and silica. "The processes of life in the body have the following divisions: First, the governing portion, the brain; second, the executive portion, the muscular system; third, the fuel, which in a chemic sense, keeps up the supply of heat, which is the source of all activity and motion. Food must supply these three great divisions of the process of life in the proper proportion, or something will soon go wrong, though nature allows a wide margin. Of the fourteen elements needed in the body, and which must be supplied in the food taken to satisfy the three great demands, vitality, strength and heat, I shall classify under the general terms as follows (the words being used in their proper and not chemic sense): The phosphates, in which phosphorus predominates, supply vitality, or brain, nerves and bone; nitrates, in which nitrogen predominates, supply the muscles with strength; carbonates, in which carbon predominates, supplying heat and making fat."

The best brain foods, or phosphates, are lean meats, fish, cheese, crabs, wheat, barley, oatmeal, almond nuts, southern corn, beans, potatoes, figs and prunes. The best carbonates, or heat-producers, are fat meat, sugar, butter, rice, rye, chocolate, dates, buckwheat, northern corn, white flour. Excess in this branch is the cause of poor health, poor blood and bad skin. The best nitrogenous foods, or muscle makers, are vermicelli, eggs, cheese, meats (particularly beef), southern corn, salmon, beans and peas. Phosphatic food for persons of strong mentality and those who study much, can not be too strongly urged. The best food is the cheapest. It is well to remember that in hot weather we should avoid carbonates, or heat makers, such as fats, rich cereals, sweets, etc. A liberal fruit diet at such times is well.

Shakespeare truly says: "Dainty bits make rich the ribs, but bankrupt quite the wits." Fat paunches make lean pates. "How can one be expected to study or work well who eats a breakfast in warm weather, consisting of ham and eggs, white bread and buckwheat cakes. He complains of a tired feeling and biliousness and is dosed for malaria, when all he needs is a mild cathartic, change of diet and perhaps some pronounced exercise such as a half cord of wood to saw."

### IMPORTANCE OF EXERCISE.

In this connection let me say a word in favor of exercise, judicious, temperate exercise. Proper elimination or removal of waste matters on the part of the individual absolutely demands muscular activity, but in securing this let us not misdirect our energies. The aggregated force which is lost in gymnasiums and other forms of exercise, together with bicycles, would move mountains and help build up the waste places of the earth if properly directed. The bicycle temperately used is a good thing for both sexes, but unfortunately it is so alluring as to be used to excess in the majority of cases. I am disposed to think the bicycle is a good deal like alcohol in its various forms, all right if used right, but under existing conditions neither the one nor the other is apt to be used right, particularly by the young.

The excessive use of coffee and tea are responsible for many nervous diseases, indeed far more than alcohol. The former can be used to enormous excess and the excess be within the limits of respectability, whereas the excessive use of alcohol soon disgraces the individual and thus many are under restraint.

*Good teeth.*—The well-to-do and those who are not forced to limit their supply of food are eating too much. Yes, it is true, that man is daily digging his grave with his teeth. If the stomach could talk it would call upon us to listen to a terrible tale of woe. How our sympathies would be aroused. Cultured and refined people (eventually the world at large will follow in their footsteps) have an appreciation of the dental profession and patronize it liberally and this is

tending in the direction of longevity. The gateway into the nutritive system of the body is the mouth, and the teeth in their grinding capacity go to make up the keystone in the arch of digestion. The parent should have the child's teeth carefully guarded by the family dentist from early infancy. The world is living to eat rather than eating to live, and we all know that it is living too fast and that it is eating too fast. Every one conversant with the numerous stomach disturbances will testify that the first essential for good eating and good digestion is a good healthy supply of teeth. I presume that if the truth were known it would be found that the Bismarcks and the Gladstones and their progenitors have been possessed of good teeth.

*Do not ignore the palate.*—I do not believe that it is safe to ignore the palate. I think the tickling of the same helps digestion, gives a gentle comfort and pleasure which favors assimilation, and yet this is not at all incompatible with due consideration for the proper chemic make up of the food. Would to God that the strong-minded women of the world, those reaching out for higher education, those believing, and very properly, that woman has a right to the highest seat in the forum and sanctuary, and the highest hat in the parquette, and to the most elevated position in the community alongside of man in every relation of life—would to God that they would devote their minds, not less to Browning and other literary fads, but concentrate themselves more upon the problems related to nutrition, to the proper feeding of the world. A recent vagabond poet correctly expressed it when he said:

"Fair woman, could your soul but view the intimate relation
'Twixt food and fate, ther'd be a new and higher dispensation.
Could you but see for 'destiny' a synonym in dinners
And what the kitchen's alchemy could make of mortal sinners,
You'd leave odd fads and learn to bake a loaf and cook a 'tater,'
To roast a joint or broil a steak, than which no art is greater."

"What deeds of fame are left undone,
What thoughts are left unspoken,
What waiting laurels ne'er are won,
What grand resolves are broken,
Because of soggy bread and pies
And viands spoiled in broiling,
Of sickly tarts and greasy fries
And coffee left a-boiling!"

Let men rule the world as it is now planned, while woman by her sweetness governs man, but let a part of that sweetness tend in the direction of catering to the best interest of his stomach, and she will find that her governing power will be greatly enhanced. If the women of the world would devote themselves to the study of the chemistry of food, to the beauties and advantages of asepsis or absolute cleanliness in the kitchen and to the philosophy of digestion and nutrition, they would be much better equipped for being good mothers and helpful wives. I would gladly give to woman the ballot if she would be willing to confine herself in its use in the management of our public schools. Surely she could manage them better than they are managed in some sections today, and when the time comes that she has them under control, I trust that she will at once introduce into every school in the land a manual training department where all will be taught how to use their hands to good advantage in the direction of becoming bread winners and bread makers. Let every boy be taught the principles of some trade and every girl the elements of housewifery, such as cooking, sewing, etc. This training will the better fit them both for becoming homemakers.

*A tranquil old age.*—But we are drifting away from the needs of old age, and yet I am confident that these points and many others which might be presented for the good of the rising generation, would also be for the betterment of the aged. We should study constantly to evolve knowledge of that which will be conducive to a tranquil old age. The term old age is a relative one. It is said that a woman is as old as she looks and that a man is as old as he feels, but science is correct in the statement that every individual is as old as his arteries. In other words, the condition of the arteries, the vessels which carry the blood which goes to make up the circulation; their elasticity, their ability to dilate and contract in the proper way, is the expression of age or youthfulness. Let us strive to pursue the course of life most disposed to retard the appearance of old age. While this unquestionably involves good digestion and proper assimilation of food, in other words due regard to all that pertains to nutrition, to waste and repair, something more is needed. Young and old need to know that there are very few of us in this world, whether engaged in physical or intellectual labor, injuring ourselves by overwork. Neurasthenia or nervous exhaustion, so-called, is more frequently nerve poisoning, and indeed we may class those apparently diseased conditions of the nervous system, along with neuralgias and many others, under the head of gout, and these and nearly all the rest can be prevented by proper attention to diet.

*Need of exercise and rest.*—Advancing age needs to know the importance of proper exercise, that every muscle and part of the anatomy must be worked in order to maintain its functions. As the unused door hinge and lock become rusty and useless, so too with various parts of the animal mechanism. Proper exercise is essential, but we must have due regard for rest and rest at the proper time. As the individual passes along down the other side of the hill where the shadows lengthen he needs more sleep; he needs to know himself now if ever and feel within himself the peace of heaven and earth, a still and quiet conscience. This has to be accomplished by a good and worthy life on general principles. He with the silvery livery of advanced age, whatever his past life has been, is generally willing to be more correct, less frivolous, with a higher regard for morality and a greater contempt for the vices of civilization, and this is fortunate.

*Fifty, the "Prime of Life."*—As we advance in years let us be in line with Fleming in Longfellow's "Hyperion," when he says: "For my part I am happier as I grow older. When I compare my sensations and enjoyments now with what they were ten years ago, the comparison is vastly in favor of the present. Much of the fever and fretfulness of life is over. The world and I look each other more calmly in the face. My mind is more self-possessed. It has done me good to be somewhat parched by the heat and drenched by the rain of life."

A worker in any field, whose age is near either the shady or the sunny side of fifty, should consider himself in his prime, good for another half century of temperate judicious work. Mr. Henry King (now managing editor of the *St. Louis Globe Democrat*) of St. Louis, one of our best writers, has recently written: "However much men may distinguish themselves before they are 55, they should be better qualified for better work than any they have previ-

ously done. Their triumphs do not convey the idea of completion so much as that of preparation. They have become well versed in the philosophy of success; they are masters of the situation by virtue of their experience; they are on friendly terms with fate because they have not failed to draw a profit from the things they have seen. The accumulation of years counts affirmatively and not negatively with respect to the ability of such men to promote the public interests and protect society against the errors of pretenders and ex-pretenders. They are not old men except in seniority and practical wisdom and in contrast with those who have yet to learn the beneficial lessons that only time and stress can impart. It is absurd to say that they lag superfluous when in fact they are at the zenith of their power. The fire does not burn as brightly in their case as it once did, to be sure, but the moderate glow is steady and well directed, and there is more to be expected from it than from the eager and unrestrained flame which is all promise with no assurance of performance."

*Temperate living.*—Immoderate drinking of whisky (*Brit. Med. Jour.*), like immoderate drinking of tea, or for that matter immoderate eating of bread, will shorten life; but what evidence is available on the subject seems to show that a strictly temperate use of alcohol tends to prolong life, for the excellent reason that it assists digestion, and thereby promotes health The most trustworthy statistics on this subject are those of Sir Geo. Humphrey. Of forty-five cases of centenarians collected by him, only twelve were total abstainers while thirty were moderate drinkers. Of one hundred persons between 80 and 100 years of age, in Sir Geo. Humphrey's table, only a fraction over 12 per cent. were heavy drinkers. The abstainers would appear from these figures to have only a slight advantage over the the non-abstainers. The real secret of long life is well expressed by Sir Geo. Humphrey when he says: "The prime requisite is the faculty of age in the blood by inheritance. In other words, if you wish to live a hundred years you must, as Oliver Wendell Holmes said of another matter, begin by going back two or three hundred years and securing for yourself a sound and long-lived ancestry.

While heredity is of importance, bear in mind that the deficiencies of heredity can be made up by correct living. Given an individual with a poor inheritance, a fair physique and intelligent appreciation of the laws of health, who governs himself, and he is a safer risk for a life insurance company than one with an ideal heredity and equipment, careless and reckless.

*Brain work conducive to longevity.*—One of the brightest and best men in America today, a man who earns a salary of $50,000 per year as the manager of a great railway system, and who yet seems to have more leisure to make after-dinner speeches, etc., than any other man in America, Mr. Chauncey M. Depew, who recently celebrated his sixty-fifth birthday, affirms that he is now able to do more and better work with less fatigue than at any other time in his life. His career has been a busy one, with a constant drain upon his energies, but it has not yet made an old man of him. The record of multiplied years in his case does not carry with it the penalty of exhaustion and superannuation. It has been afternoon with him for twenty years, and still it is not sundown. He has trained himself to do a maximum of service with a minimum of effort; he knows how to concentrate his mind upon the essentials and to dismiss the non-essentials with a smile. Indeed, there can be no question that men who use their minds, in other words, brain workers, in consequence of the discipline through which they have passed, are better equipped for longevity than others. An enormous list could be given which would demonstrate the truth of this statement. It is interesting, however, to note that no one has outdone Michael Angelo in old age. Humboldt ceased at 85, but we find Angelo reaching further on and touching the verge of 90.

At 71 he drew the design for the rebuilding of St. Peter's and superintended that work until he was 89 years old, when he died. And during the first four years that he gave to the design, which has been a revelation of genius to all that have seen it, he painted his masterpiece "The Conversion of St. Paul." In the ten years preceding, he did "The Martyrdom of St. Paul" and the "Last Judgment." He died in harness at nearly 90, with the strange regret that he should have fallen so young. Titian lived to greater age than Angelo, almost reaching his one hundredth year. The thought of death never troubled Titian. "It is so far off," he said "there will be plenty of time to think of it by and by." He thought he was quite young at 80, and promised himself twenty more years of hard labor. At 78 he finished his "Martyrdom of St. Lorenzo," the last of that long list of great paintings that Titian executed. At 80 he set to work on the "Last Supper," but he had not gone far, about one year, when he saw that his ideal was escaping him. The old man turned from his work in despair, but afterward resumed it and was 87 years old when he finished that picture. It is called a masterpiece, but Titian himself did not think so. Stradivarius made his last violin in 1736, when he was 90 years old. His sight failed at 85, but he still made fiddles. At almost one hundred this man, who had never known rest, and who at the same time had never worked excessively, spent one year doing nothing and then died. It will be noticed that he held out two years longer than Michael Angelo. De Beriot is said to have owned the last violin made by Stradivarius, which he thought the finest instrument in the world.

It is interesting to know that C. A. Stephens, M.D., of the Boston University Medical School, is reported as saying he is convinced that the progress of brain science will enable mankind to successfully overcome decay and its climax, death. He further states his belief that death at 70 years or therabouts is due to the fact that generation after generation is born into the world expecting to die at that time and therefore die. He expresses the opinion that if children were brought up to believe they would live indefinitely, the life limit would gradually be extended in the course of several generations.

*Keep the heart young.*—As we grow old we need to know that we will remain young if we keep the heart young, and this we can do by mingling with the young. All who have seen Sara Bernhardt, at an age close to 60 years, have marveled at the youth that glowed in her face and permeated her lithe and willowy form. When asked for her secret, "I have my art" she replied, "I work, work, work. In work I take my greatest pleasure. It is a tonic; a delicious preventive of age. I sleep, and I never drink wine. I act. There you have it all."

This is the very concentration of wisdom; enthusiasm, work and sleep, these are the trinity making and

keeping men and women always young and always useful, and let it be remembered that enthusiasm and joy in work is of most valuable import, and we can, if we will, cultivate enthusiasm for our work. Truly the worker is happier than the idler at all times, even though the latter be possessed of millions. M. Huret once asked Baron Alfonzas de Rothschild for his views of happiness; whether he thought that wealth brought happiness, and in answer the millionaire said: "That would be glorious. Happiness is something that people toil for." I suppose, he added reflectively, "some advantages do attach to money or people would not give themselves so much trouble, but believe me the truest source of happiness is work." It will be noted the world over that the world's greatest workers, who give attention in a reasonable way to the laws of health, are much more apt to live to an advanced age than the drones. People of advancing years who try to look young in the social world retain their youth by so doing. Let grandma wear bright ribbons and gaudy gowns if the colors become her, and grandpa be dudish as he pleases with flashy neckties and cheerful garb; both will be the younger for it and, besides, it is in harmony with nature. The trees take on their brightest colors as the winter of their life draws near. The older one becomes, the more they should avoid dark and somber hues, and this includes the capillary covering of the heads of both sexes. Gray hair is honorable, that which has been dyed is an abomination before the Lord.

*Cultivate thankfulness, cheerfulness and love.*—Cultivate thankfulness and cheerfulness. An ounce of good cheer is worth a ton of melancholy. "A merry heart doeth good like a medicine, but a broken spirit drieth the bones." Cultivate to the last the ability to love, realize to the fullest that the greatest thing in the world is love. Be like the curate of Olney, who said of himself, "he could live no longer than he could love." Without love there is no joy in life. Let us as we grow older realize the need not only of work, a proper physical and mental occupation, but of play, recreation and study. Let the work be as far as may be in the direction of helping others to help themselves. Nothing keeps one young like thinking of and having a sympathy for others. Canon Farrar was right when he said: "We often do more good by our sympathies than by our labors, and render to the world a more lasting service by absence of jealousy and recognition of merit than we could ever hope to accomplish by the straining efforts of personal ambition. In the cultivation of a sympathetic heart we do ourselves more good than those we serve. As we grow old let us cultivate a sympathy for the world at large, for its weaknesses, for the young, and the returns will come to us a hundred fold. The world ever gives us freely that which we give to it. As Shakespeare puts it, let us consider the capacities of those that are young and not measure the heat of their livers with the bitterness of our own galls.

No sweeter epitaph was ever written for an aged one on marble shaft than one noted, I think by Oliver Wendell Holmes, a tribute of an aged husband to his life companion, viz.: "She was so pleasant." Yes, let us, like the author of the first epistle to the Corinthians (which, by the way, is the sweetest love-letter ever written by mortal man or woman), determine to grow old gracefully along the lines of love. It will be remembered (says Drummond) that in the beginning love was not the strongest point of Paul, indeed his hand was stained with blood; but the observing student can detect a beautiful tenderness growing and ripening all through his character as he gets old, inspiring that same hand to write, "And now abideth faith, hope, love, these three; but the greatest of these is love." As we grow old let us not forget that "we shall pass through this world but once. Any good thing, therefore, that we can do, or any kindness that we can show to any human being, let us do it now. Let us not defer it or neglect it, for we shall not pass this way again."

*Regard for youth.*—Old age needs to appreciate the importance of consideration and respect for youth, that it is in the line of its duty and its own interest to treat the young gently, kindly, sympathetically, to advise them in such a manner as to invite their advice rather than to attempt to direct and conduct. I would say with Thackeray:

> "We suffer and we strive not less, not more, as men than boys,
> With grizzled beards at sixty-five as erst at twelve in corduroys."

Indeed, in the affairs of life extreme old age should be willing to assume a position of consulting engineer rather than that of director-general. As Max Nordau says, there are men born to rule, who refuse to bear another's yoke or to submit to another's control. They want their heads and their elbows free. They are only able to yield to the discipline of their own will and judgment, never to those of another. They submit because they choose or think best, never because they are compelled to do so. These individuals never meet with a barrier that they do not demolish or ride over. Life does not seem worth living to them unless they experience that satisfaction produced alone by the unchecked play of all their capabilities and inclinations. The consciousness that a large part of their horizon is obscured by some alien consciousness removed alike beyond their influence and observations, destroys their enjoyment of it; they look upon *ego* as a cramped and wretched *ego*, incapable of stretching and asserting itself; their very existence appears insupportable to them if they consider it impelled and guided by alien forces. Such individuals require room. In solitude they find it without effort or difficulty. If they are anchorites, if they are hermits or fakirs, Canadian trappers or pioneers of the backwoods, they can live out their lives without conflict with others. But if they are to remain in the society of man, there is but one place for them, that of leaders.

Such a one this century has had in the German Prince Bismarck, and there are others. It is difficult for such to adjust themselves to the changed conditions of advancing years. Unless they have a care, the latter years of their life will be very unhappy. All such need to bring their strong minds to the contemplation of ways and means of growing old gracefully, and not mar a magnificent record by the unpleasant shadows of their latter years. Such are apt as parents to always look upon their progeny as children and are never willing to give up controlling them.

*Cultivate a religious or philosophic spirit.*—Philosophy or religion should enable such to make their last days among the most attractive of their lives. Who will not say that the magnificent fight on Mt. McGregor by the grand "Old Commander" was greater than any with which he was connected from Fort Donelson to Appomatox? And a more glorious

victory was never won by mortal man. The sweet gentleness and patient resignation with which he bore the suffering, the majestic courage that enabled him to write the book that drove the wolf from the door of the home that he loved so well; no grander event looms up on the records of history. A noble mind, soothed and comforted by faith, a consistent religious belief was his prompter. Religion, it is unquestionably that which is making the last days of England's "Grand Old Man," Gladstone, bright, cheery and helpful.

A sweet and noble faith it was that enabled one of St. Louis' ablest and best doctors, L. Charles Boislinière, to live a long and useful life and accept the sorrows, disappointments and agonies of prolonged illness in the latter months of his nearly four score years and ten, and receive his last summons in the same gentle graceful way that he would have received a message of love from the sweetheart and wife of his younger days and his ripened age. Yes, many a day will come and go before a brighter, better member of the medical guild will live as well-rounded and beautiful a life in our midst, and drift out as gracefully, calmly and beautifully into the great ocean of eternity as Dr. Louis Charles Boislinière, who recently went from among us. This good and heroic one, whose remains found a resting place 'neath the shadow of the cross on the silent slopes of Mt. Calvary, is in evidence in favor of a graceful old age being assured to the well-trained mind sustained by religious convictions.

*Keep the mouth shut.*—As a guard to health old age needs, and by the way, people of all ages as well need to know that it is necessary to keep the mouth shut, for it was not intended for breathing purposes, the nose being essential to this purpose and having the advantage that it warms the air and strains from it irritating matters injurious to the lungs. Remember, the mouth is exclusively needed as a port of entry for food and a port of exit for crystallized thought, the chief medium of communication between man and man. It is well for all to remember, though unfortunately, the sick and suffering and the aged, should especially remember that, save in rare exceptions, unkissed kisses are the best. Indeed, in this connection let me say that the kiss is only good for family use, and since we know that more than one hundred varieties of microbes have their home in the average undisinfected mouth, I insist that the aseptic kiss is the only permissible one anywhere.

*The rights of old age.*—Undoubtedly if old age pays due regard to those things classed under the head of needs and grows old in a smooth and easy way, accepting changed conditions in a proper manner, the rights to which they are entitled will be more willingly granted, but whether they do or not they are entitled to many rights which too often are denied them. Old age has a right to be guarded, protected, respected, to be treated with every possible consideration. Indeed, I feel that the second childhood demands even quite as much tenderness, patience and thoughtfulness as the first. Let us remember that in the equipment of the old the head yields before the backbone, that the judgment, the ability to reason well, soonest flutters in the battle of the cells that are tending deathward, and the emotional centers, together with a firm spinal column, are soon all that is left; in other words, the unyielding will, undirected by reason, soon assumes a very unpleasant form of stubbornness. But all this should be met cheerfully and patiently, because it will be but a little while until it is over and the memory of kindness and service of the past should inspire in the direction of reciprocity. Our aged ones have a right to claim our veneration, our love, and we should constantly give them the evidence of it.

"Oh, friends, I pray tonight keep not your kisses
For their dead, cold brow.
The way is lonely, let them feel them now.
Think gently of them, they are trouble worn,
Their faltering feet are pierced with many a thorn.
Forgive, oh, hearts estranged, forgive, they plead;
When dreamless rest is theirs they will not need
The tenderness for which they long tonight."

*Respect for authority on the part of the young.*—We need to preach a gospel to the young of America, calling for more respect for authority, a greater respect for age. The very air in our country is charged with democracy. The spirit of the Declaration of Independence has permeated every fiber of our population and we must have a care or sorrow will come. We must teach that reverence is not servility. Chancellor Hoyt very truly said thirty-three years ago, and it is more true today: "We do not in the intensity of our independence discriminate between reverence and its counterfeit presentment. The dread of appearing servile has led us to be irreverent alike to the aged, to station and to things sacred." Sacred history relates that in the entertainment given by Joseph to his brethren, they sat before him the first-born according to his birthright, and the youngest according to his youth. Herodotus tells us that the young men of his country and time yielded the road to age and rose from their seats before the hoary head. It is a noticeable fact that Demosthenes, the foremost man in the Athenian senate, was compelled to apologize, in his first philippic, for rising to speak before all the older members had delivered their sentiments. The liberty and national existence of Greece were at stake, every heart was glowing, every ear was erect to hear the burning words of the greatest orator in the world, and yet Attic patriotism was subsidiary to Attic politeness. Xenophon has recorded liberally the evidence in favor of the custom of the Greeks being uniformly deferential to the aged. The only exception to this rule being that old bachelors were not considered by the Greeks as entitled to the ordinary courtesies and amenities of social life, and to them, therefere, boys and girls alike might be as saucy as they pleased without fear of punishment. So it seems that even in the classic times the old bachelor was left to paddle his own canoe. But no intelligent man should remain a bachelor until he is old, unless he can furnish excellent reasons for doing so.

Cicero has recorded that respect which is paid to age forms an infallible criterion by which to determine the moral advancement of a people. We all recall the fact that the Greek and Latin races considered morals and manners as synonymous terms and even now the proper thought is that ill manners are not only vulgar but positively wicked. Young America will be happier as youth, adult or patriarch, if he is taught to know his place and to respect his elders. He must be trained in the direction of making proper genuflections and now and then to gracefully bend his back and droop his eyelids with respectful regard. He must also be taught to know that there is such a thing as rank in America as well as elsewhere, that

while all men may have been created free and equal, they do not remain so, and their rank and station depends upon their achievements. It is with feelings of sadness that I see men and even boys sit in the presence of ladies standing, and I sometimes fear that our "new" woman is somewhat to blame for it. But we must cultivate and stimulate a different spirit, not only polite consideration for woman, in that no matter how low her place, she stands as a representative of sister, wife, daughter and mother; but due respect for place and power; due regard for worth and work, and a proper reverence for things sacred. I am disposed to believe that we Protestants have protested too much; that in stripping the church of the decorative features and various forms which we thought smacked too much of barbaric idolatry, we have gone too far. The bowing of the head in the presence of the Cross, even extremer forms of worshipful regard for things which are suggestive of the eternal, are better than irreverence.

The previous reference to the respect for age on the occasion of the feast given by Joseph to his brethren, brings to my mind the thought that we all could learn a lesson from the Jews in their home life, in their regard for old age. The dear old mother and grandmother of the Jewish home, and the patriarch with the bowed form and grizzled beard, has the seat of honor on all occasions, and no corner of the house is too bright, cheerful, warm and cozy for them.

Are we not justified in believing that the most attractive feature of the Jewish people, their home life, their disposition to make the entire earth, including the Gentiles, contribute to the joy and comfort of their home, has been largely brought about by the reverential regard for old age which has been a part of their history through all the centuries of the past?

*Reciprocity.*—All of us should have a prompting in the direction of recognizing the rights of the aged, for the time will come when we will wish to have such rights accorded to ourselves; so we should be somewhat actuated by the same sentiment as the individual referred to by Holmes who is recorded as having written his own epitaph, as follows:

> "Here lie I, Martin Elginbrodde,
> Have mercy on my soul, Lord God,
> As I would do were I Lord God,
> And ye were Martin Elginbrodde."

To the young then we would say, be ever thoughtful of the feelings and rights of your elders, for whether you expect it or not, you are apt to receive in return, before the end of life, that which you give to others. "Now gird thee well, my youth of twenty year, against the marching morrows that fill the world with fear."

*Politeness.*—The parent can not begin too young to inculcate the truest politeness, which, after all, is but consideration for the rights of others. A reverential regard for gray hairs can be made so completely a part of the education of the home by precept and example as to make it come easy as the years pass. I think it is a good plan to take the child from time to time, to the house of the aged and impress him that it will be but a little while until his own parents are quite as old and helpless as those about him. His sympathies can be drawn upon easily, and if proper effort is made it will not be long until even "unlovely old age" will receive due consideration. In the daily walks of life the child should be taught, if the means of the parent at all permit, that no beggar with gray hair should ever be permitted to escape without receiving something. Indeed, I am disposed to think that a refusal to relieve any form of need should never be expressed in a child's presence, unless a complete explanation be given for the refusal. Never failing to make a proper effort to stimulate and develop a proper ambition in the child he should soon be taught that "at best we are all mendicants waiting along the roadside in the sun, tatters of yesterday and shreds of tomorrow clothe us everyone."

*Close of life means rest.*—A ripe old age gracefully and gently approaches the final hour with a weary feeling, ready and willing to take rest the moment that it comes, and in response to the query, "What is death"? it can realize that it is "a rest from vibrations of sensations and swayings of desire, a stop from the ramblings of thought, a release from the drudgery about our body." It can say with the old tent-maker of Arabia, "Why, if the soul can fling the dust aside and naked in the air of Heaven ride, were it not a shame for him in this clay carcass cripple to abide?" May that soul not believe with the same old pagan tent-maker that,

> "We are no other than a row
> Of magic shadow-shapes that come and go
> Round with this sun-illumined lantern held
> In midnight by the master of the show.
> And that inverted bowl they call the sky,
> Whereunder crawling, cooped we live and die,
> Lift not your hands to it for help—for it
> As impotently rolls as you and I."

But rather have an abiding faith that all is well. But, whether you have that faith which is so satisfying to those who possess it or not, you at least can be satisfied as the pagan philosopher, feeling safe in that he who ordered the first scene in your life, now gives the sign for shutting up the last. You for one, therefore, can retire well satisfied, for he by whom you are dismissed is satisfied also. But after all,

> "As a fond mother when the day is o'er,
> Leads by the hand her little child to bed,
> Half smiling, half reluctant to be led,
> And leaves his broken playthings on the floor,
> Still gazing at them through the open door,
> Not wholly reassured and comforted
> By promises of others in their stead,
> Which, though more splendid, may not please him more,
> So nature deals with us, and takes away
> Our playthings one by one, and by the hand
> Leads us to rest so gently, that we go
> Scarce knowing if we wish to go or stay,
> Being too full of sleep to understand
> How far the unknown transcends that we know."

May each and everyone of you live to a ripe old age in harmony with the last words of the great Victor Hugo, "Winter is on my head and eternal spring is in my heart. The nearer I approach the end, the plainer I hear around me the immortal symphonies of the worlds which invite me. For half a century I have been writing my thoughts in prose, verse, history, philosophy, drama, romance, tradition, satire, ode, song; I have tried all. But I feel I have not said the thousandth part of what is in me. My work is only a beginning. The thirst for infinity proves infinity."

May you have troops of friends, prattling children clinging lovingly about your knees and necks, and when the final summons comes and your last good-byes are said, may you wander over upon the other side of the beautiful hills of eternity, happy in the thought that you will greet many more loved ones there than you leave behind.

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Let us have a Department of Public Health!

# ORIGINAL ARTICLES.

## NEUROTIC ATROPHY OF BONE.

BY ARTHUR E. PRICE, M.D.
AWARDED THE J. W. FREER MEDAL, RUSH MEDICAL COLLEGE, CHICAGO, 1897.

The study of neurotic atrophy of bone as a pathologic research, may be outlined in general in the same manner as ordinary atrophy of these structures; not necessarily depending on the causes of the latter, but resembling each other greatly in the characteristic state of degeneration. The change is a structural one in which certain portions of cells that properly should combine with oxygen are thus rendered soluble and remain; a fatty degeneration ensuing.

Thomas Curling of London, was the first to differentiate between concentric and eccentric atrophy of bone, by experiments with electricity, on degenerated nerves, and by cutting off the blood supply to bones. He demonstrated that the nutrition and also the vital powers of bone, being suspended, a process of resorption of the harder or more component parts occurred, and the compact structure changed into one closely resembling cancellous tissue. The gradual softening and loss of weight and size, he termed concentric atrophy, but closely allied however to eccentric atrophy, in which the medullary and Haversian canals enlarge and become porous (osteoporosis) with a corresponding diminution of weight and size. The atrophy progressing steadily, leads to diminished activity and cessation of function.

It is proposed in this article to classify the various changes which take place in connection with neurotic atrophy of bone, from an etiologic standpoint. 1. Tropho-neurotic changes occurring in paralysis of muscles in connection with bone, and a lack of exercise, resulting in atrophy. 2. Neuropathic conditions of the central nervous system and its tributaries.

In order not to deviate from the subject allotted, and to limit myself to the classification already made, it will be essential to keep in close relation to the medium along which the neurotic atrophy of bone is brought about, viz., the cerebrospinal and sympathetic nervous system.

1. *Tropho-neurotic changes.*—Bone may atrophy from mere want of exercise, due to certain nervous diseases which cause paralysis of the muscles; such changes occurring in progressive muscular atrophy, anterior poliomyelitis, locomotor ataxia, etc., illustrating the characteristic manner by which bone atrophy is accomplished.

Pathologic changes occurring are evidenced by the large ganglionic cells of the anterior cornu of the spinal cord becoming pigmented and atrophied; also extension of lesions along the anterior or motor nerve fibers, resembling the degeneration following nerve section in the lower animals and resulting in the breaking up of the medullary sheath, disappearance of the axis cylinders and proliferation of the nuclei in the walls of the sheath of Schwann.

The paralyzed muscles undergo fatty degeneration of the muscular fibers, so that their functions are abolished and the result is atrophy of bone and other tissues, resulting in deformity of limb and more or less loss of function. Lack of use, therefore, is thus followed by an arrest of development, and also by resorption of the more essential elements of bone.

The increase of the earthy salts, elimination of the cellular elements and diminution of vascularization tend to make the bones brittle (fragilitas ossium), from which condition, if far advanced, fractures occur from most trivial causes, such as multiple fractures, so generally regarded as conspicuous clinical features. Landerer reports a case of locomotor ataxia in a man 23 years old, who had suffered eight fractures, and in each instance the fracture was the result of an insignificant injury.

Again, heredity and insanity seem to be etiologic factors in fragilitas ossium. Pauli gives an instance of the former in which for three generations certain individuals of a family had suffered from extraordinary fragility of bones.

Jarvis S. Wight of Brooklyn, gives an interesting account of a case of fragilitas ossium with multiple fractures and vicious union and deformity corrected by osteotomy. Boy, 18 years old, fell and broke his right femur near the middle and came to Long Island Hospital, Oct. 28, 1890. On examination the bones of the thigh were found to be very much deformed and near the lower end bent considerably backward, the toes of both feet pointing directly downward. The history as given by the father developed the fact that his son had always had poor health and had been subject to fits and convulsions, and that this was, in his estimation, the cause of his crooked bones. The boy had already sustained several fractures of the long bones before entering the hospital. It is worthy of mention that he was an inveterate smoker and on ceasing this he appeared to improve rapidly for several months, without sustaining any more fractures. He however resumed the habit and rapidly grew worse and soon received two more spontaneous fractures; one near the middle of the femur, the other, of the radius. Shortly after this he died of intercurrent pulmonary disease.

Investigations show that in some instances bony union occurs in a shorter time than under ordinary circumstances, while in others the nutrition is so impaired that the callous formation is imperfect or entirely wanting. The usual treatment for fractures, to obtain bony consolidation with the limb in a useful position, should be observed in fragilitas ossium. Long confinement in bed should be avoided, by use of plastic circular splints, which will enable the patient to go out and enjoy the outdoor air and exercise within two or three days after the injury. Appropriate diet and good hygienic and sanitary surroundings should be recommended, and the internal use of potassium iodid in cases of defective callous formation.

Buzzard of London, presents three cases of locomotor ataxia, illustrating the resorption and friability in atrophy of bone:

*Case 1.*—A man in whom the hip joint was completely disorganized, the neck and head of the femur disappearing within a limit of three months.

*Case 2.*—Woman presenting typical clinical features of tabes dorsalis. While walking slowly along in the ward of a hospital the femur was fractured near its neck.

*Case 3.*—Woman; dislocation of left leg outward and backward on the femur. The bones could be brought into apposition, but the patient before putting on a leather casing, had to bandage them together. "It seemed as if the condyles had been beveled off and the end of the femur turned into a rounded and smooth stump."

G. T. Morton of Philadelphia describes a case of acute anterior poliomyelitis with atrophy of the bones of the lower extremity in a boy 4 years old. The child was born with club-foot. On examination he

was found to have pure valgus of the right foot and the plantar arch also missing, giving rise to pes planus or flat foot. The right calf measured seven and one-half inches, the left eight inches and the right leg three eighth of an inch shorter than its fellow.

The following case occurred in Prof. Nicholas Senn's clinic March 16, 1897:

Fig. 1.

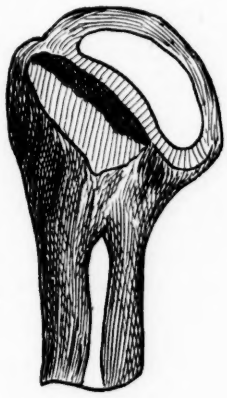

Fig. 2.

Fig. 1.—Head of humerus from a case of acute ant. poliomyelitis.
Fig. 2.—Healthy humerus for comparison.

Girl, 6 years of age, in which a probable diagnosis was made of acute anterior poliomyelitis. On examination the left leg was found to be an inch shorter than the right and evidence of displacement of an inch upward of the trochanter, by applying the Roser-Nélaton line. The child was placed under an anesthetic and more careful examination of the parts revealed an atrophy of the acetabulum, with difficult coaptation of the head of the femur. The dislocation was reduced and the femur retained in position by plaster-of-paris dressing. In conclusion, he stated that serious mistakes have been made by competent surgeons in operating for chronic joint affection by resection or amputation, mistaking the atrophy for an extension of the disease from the joint to the bones, removing consequently too much tissue, often necessitating an amputation for an intended arthrectomy or resection.

Charcot presented several casts to the Pathological Society of London, illustrating the friability and readiness to spontaneous fracture of bones in locomotor ataxia. Cast 1 showed the wearing away of the upper part of the femur, associated with an ununited fracture of the neck of that bone. Cast 2 showed extreme shortening of a femur after a fracture. Cast 3 showed left humerus to be dislocated beneath the clavicle, and head of bone apparently unaltered. The opposite

Fig. 3.

Fig. 4.

Fig. 3.—Normal femur. Fig. 4.—Atrophied femur in a case of locomotor ataxia.

humerus was dislocated on to the dorsum of the scapula and the head of the bone partly absorbed; also dislocation of the right knee joint (the tibia and fibula being twisted outward and displaced upward behind the femur), the lower end of the latter bone being partially absorbed.

Charcot found in his researches in this direction, that the exact pathologic cause of these lesions was difficult to ascertain, for the reason that in some cases the ganglionic cells in the anterior cornu of the spinal cord were found atrophied on postmortem examination, while in others there was no associated muscular atrophy and the cells were found in a healthy state.

Friedreich, however, draws different conclusions, and adheres to the myopathic theory for progressive muscular atrophy, in which he asserts that there is an intramuscular inflammatory process, beginning with hyperplasia of the interstitial connective tissue, terminating in atrophy and fatty degeneration of the muscular elements. This chronic myositis he believes is capable of producing secondary disorders of the nervous system, by extension of the lesion to the intramuscular nerves and by a neuritis extending along the nerve trunks to the spinal cord.

Cruveilhier, Tardieu and others have demonstrated that the cells of the anterior cornu are primarily involved, as noted clinically by pain in the dorsal region, increase of reflexes, spasm of muscles, and peculiar reaction of muscles and nerves to the galvanic current. These symptoms coming on insidiously and later completely disappearing when the trophic disturbances appear in the form of atrophy of bones and joints.

Fig. 5.—"Main en griffe"—injury to ulnar nerve. (Duchenne.)

INJURIES TO NERVE TISSUE IN GENERAL.

The nerve trunks are exposed to various kinds of traumata, such as section, tearing, crushing, violent concussion, luxation, persistent compression, cauterization and suppuration, the immediate effect of which is an interference with the conducting power of greater or less extent and duration, according to the kind of injury sustained. With a continuation of loss of function paralysis of the part with wasting and atrophy ensues. In this manner it will be seen how easily a neurotic atrophy of bone could develop after gunshot and other wounds.

Schiff, in his experiments on section of nerves in the lower animals, found that the diameter of bones diminished considerably, the apophyses rounded, the medullary canal enlarged and the amount of calcareous matter greatly diminished.

Some of the worst cases of neurotic atrophy of bone may occur in connection with the upper cords of the brachial plexus, one or all of them being crushed by falls upon the shoulder, often leaving permanent paralysis of the corresponding bone.

Contractures and paralysis of muscles constitute the

most rebellious motor disorders of traumatic origin. The contractures are due to a tonic spasm of the antagonists, caused by a paralysis of certain muscles from nerve lesions, crutch paralysis for example. The stiffness of the joints which occurs after fractures or other accidents, is due to forced immobility of the limb in an immovable apparatus, and in such cases we may prevent the bad effects (leading to an atrophy in course of time) by passive movements performed frequently and carefully. Paralytic contractures of the knee, the hip, and especially of the hand, where they may follow injuries of the ulnar, median and musculo-spiral nerves, are comparatively common.

Duchenne collected 100 cases in which the musculo-spiral nerve had undergone degeneration from septic and traumatic causes, and in every case all the parts supplied by this nerve became paralyzed, resulting in marked atrophy of bones of the hand and forearm.

Injuries to the spinal cord, such as fractures and dislocations, produced mainly by forced flexion (the head and neck being bent forward on the chest, or the thorax upon the pelvis), and severe traumatism to the brain are sometimes followed by a neurotic atrophy of bone in accordance with the motor area involved.

Fig. 6.—Position of hand in pachymeningitis cervicalis, affecting lower part of cervical enlargement.

If the faradic excitability of the muscles persist the injury is in all probability slight, but if the faradic excitability disappears and remains absent for over a year the chance of recovery is small, and ensuing paralysis begins followed by atrophy of bone. The prognosis should be guarded, and means taken to preserve the nutrition of the part, viz., warmth, friction, massage, stimulating liniments and galvanism.

2. *Neuropathic conditions* brought about by action of pathologic changes, such as tumors of the cord, spinal hemorrhage, chronic inflammation of the cord, external and internal pachymeningitis, multiple cerebro-spinal sclerosis, infantile spinal paralysis, tubercular meningitis, syringomyelia, syphilitic gummata, progressive bulbar paralysis, cerebral palsies, insanity, etc., are all liable to eventuate in a neurotic atrophy of bone. The resorption of the essential elements of bone with shriveling, bending and brittleness, also occur under this class.

Paralytic contractures in certain cases followed by marked deformities, are exemplified in infantile spinal paralysis, the latter disease coming on without prodromata and with fever (104 to 105 degrees F.) followed by stupor and convulsion. Paralysis develops rapidly during the fever, but soon diminishes, leaving a permanent palsy, generally monoplegic and confined to one limb. Within two weeks faradic excitability is lost, followed by contracture of certain muscles and steadily progressing atrophy of bone. Characteristic contortions observed for the most part in the foot are pes equinus paralyticus and pes calcaneus paralyticus.

In the region of the spinal column paralytic contractures often take the form of lateral curvatures (paralytic scoliosis), or by flexion and extension contractures (paralytic kyphosis and lordosis). No doubt pressure upon the paralyzed part, by the weight of the body during standing and walking, aids somewhat in producing these deformities.

In syringomyelia the disease is for the most part localized in the cervical portion of the cord, followed by atrophy of bone of the upper extremities. In locomotor ataxia the atrophy is generally limited to the lower extremities. Traumatisms often play a predisposing part in connection with the neuropathic changes. Analgesia is always pronounced and large joints have been resected without the use of anesthetics. This analgesia is moreover the chief factor in furthering the development of disturbances of nutrition which is present in bones and joints.

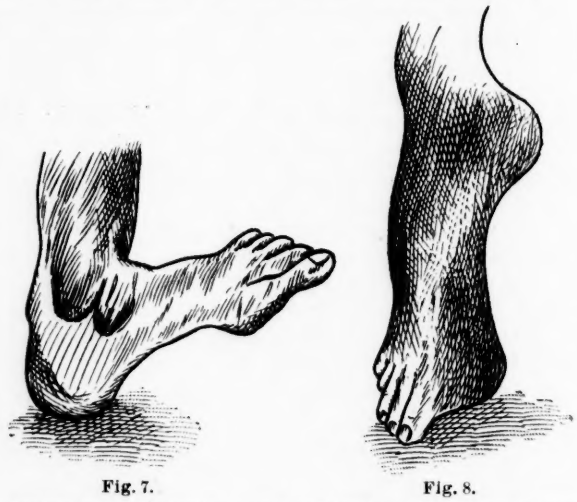

Fig. 7. Fig. 8.

Contortions in infantile spinal paralysis. Fig. 7.—Pes calcaneus paralyticus. Fig. 8.—Pes equinus paralyticus.

The deficient nutrition is an impairment of the normal supply of blood, whereby the functions of the nerves are deranged. Aside from the physical and mechanical irritants (which are not a continuous process), the organized irritants, viz., anthrax, malignant pustule, glanders, and the more general diseases such as syphilis, tuberculosis, leprosy, typhoid fever, anemia and the like, are some of the prime disturbances in deficient nutrition. They permeate the system, spread wider and wider, invading the tissues farther and farther, and by so doing lowering the vitality of important nerve trunks and branches, until their energy is spent, or meeting with some part sufficiently nourished to resist.

Virchow reports a case of progressive muscular paralysis and atrophy of bone after typhoid fever, ensuing without any evident nervous affection. He thought that it was in this quarter that pathologic anatomy might usefully direct its energies.

Dr. Vandyke Carter states that syphilitic lesions somewhat resemble those of leprosy, especially in regard to results. He cites a case of syphilitic thickening of the ulnar nerve near the condyle of the humerus, producing a paralysis of the interossei muscles, and later on atrophy of the corresponding bones.

In the new museum joining the École Pratique at Paris is a skeleton in which most of the bones of the body are anchylosed, resulting from a syphilitic gumma of the brain. Marked atrophy of the bones of the lower extremity is revealed, the femur being scarcely larger than an ordinary radius.

This vascular neurosis seems therefore to be an important etiologic factor in the neurotic atrophy of bone, and whether acting independently or conjointly with the trophoneurotic and neuropathic conditions, atrophic degeneration becomes the ultimate termination.

The treatment of neurotic atrophy of bone should be local and general. Of the former, fixation and orthopedic appliances are often followed by improvement. Firm anchylosis in a good position is preferable to a loose joint which is rapidly ground to pieces by friction, and arthrodesis performed in the early stages results in marked benefit. Should extensive destruction or suppuration occur, the question of arthrotomy, resection or amputation would arise.

Fig. 9.

Fig. 10.

From a case of syphilis. Fig. 9.—Anchylosed limb. Fig. 10.—Atrophy of femur.

The general treatment should comprise those means best adapted to the special cause. Good hygienic surroundings, nutritious diet, with plenty of outdoor air and sunshine. In cases of strumous diathesis, cod liver oil and general tonics, such as Fowler's solution of arsenic and the syrup of iodid of iron, for anemic and enfeebled patients. When dependent on syphilis, daily inunctions of mercury and the use of iodid of potassium. Stimulating liniments, massage and electricity, are all excellent for the paralyzed muscles; weak galvanic currents may be applied to the spine for five minutes at a time every other day, and if the paralyzed muscles should respond, the interrupted galvanic current may be used.

*Summary.*—It has been the aim in this article to present the various forms of bone atrophy which occur in connection with nervous disorders, and to eliminate all other atrophies not depending on the causes of the latter. It would seem almost impossible, were it not for the general conclusions deduced (clinical and anatomo-pathologic) which have been presented, to differentiate from ordinary atrophy of bone. The gradual diminution, loss of weight, deformities, fragility, etc., are all characteristic features. Under these circumstances a positive diagnosis of neurotic atrophy of bone would be difficult, were it not for the otherwise *chronic course*, and *abolishment of pain, reflexes* and *electric excitability*, which are as a rule present to a greater or less extent in ordinary atrophy of bone.

Our knowledge, at present, in regard to the exact pathology of bone atrophy from nervous causes, is too meager to warrant any positive conclusion. Whether the degenerated and nutritive changes affect primarily the muscles, the peripheral nerves or the motor cells in the anterior horn of the spinal cord, is as yet undecided. There seems to be a consensus of opinion by some excellent authorities, as previously quoted, that the spinal cord is primarily involved.

It is also a question whether the spinal diseases such as syringomyelia and locomotor ataxia should be regarded as the direct causes of neurotic atrophy of bone, or only as predisposing. Charcot has lately adopted the view that certain localized processes of disease in the diaphyses and epiphyses, in conjunction with the spinal troubles are the sole factors in producing the bone atrophy.

It must be admitted, however, there is need of some more definite and positive theory, which, if substantiated by chemic and microscopic research, would shed light upon much that is obscure in the relations of the different affections included under the head of progressive muscular and bone atrophy.

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## TREATMENT OF COLLES' FRACTURE.

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In 1814, Colles of Dublin published his observations on the fracture which today deservedly bears his name. Previous to that time this injury practically masqueraded under the description of backward dislocation of the wrist or forward dislocation of the lower end of the radius (!), for such dislocations were considered common by the masters from Hippocrates down. The nearness of the fracture to the wrist joint, the peculiarity of its anatomic surroundings, the absence of the characteristic sign of fracture unless specially sought for, and finally the teaching of the masters, all served to hinder the recognition of the actual occurrence in this injury, fracture. Therefore, to Colles will ever be due our appreciation and gratitude for the correct diagnosis of this injury, for correct treatment in surgery is dependent upon right diagnosis to even a greater degree than in medicine.

In this paper the writer will quote the views of eminent surgeons who have written on the treatment of Colles' fracture. It will be seen there has been a considerable change from the earlier days of over treatment to that in vogue at present, when the real nature of the injuries is better known. Sir Astley Cooper, after describing a method of dressing now obsolete, writes: "The arm should be placed in a sling. This position is to be preserved for three weeks in young persons and for four or five in the aged before passive motion be attempted. The recovery in these cases is slow, and six months will sometimes elapse before the motion of the fingers is completely restored."

John H. Packard ("Notes on Fracture of the Upper Extremity," p. 57) writes of a modification of Bond's splint, to which in some cases was added a dorsal splint, each with an elaborate padding of compresses. He says: "Very great care should always be taken to make these compresses of exactly the right thickness, and to lay them over the precise spots at which their effect is needed. An evenly applied bandage, making just the requisite degree of pressure, is necessary to the maintenance of the splint and compresses in their place. And I think that if, as a rule, the apparatus now described were kept on for at least six weeks we should have fewer cases of deformity after those fractures than at present. Often, indeed, I believe it might be retained with a gradual lessening of the size of the compresses for a much longer time, to the great advantage of the patient.

Swinburne ("Treatment of Fracture of Long Bones by Simple Extension," p. 43) employed a straight splint over the back of the forearm and hand, with a pad over the carpus and another near the elbow. The splint was attached to the hand and forearm by adhesive plaster, in a fashion that Swinburne believed produced extension of the parts involved. The writer is dubious of the extension produced by such means, but believes that Swinburne got the fragment into good position by manipulation, and that his simple splint and dressing kept it there. There was no interference with the fingers, and the dressings were discarded sometimes as early as the fifteenth day, generally from twenty-one to twenty-five days. Swinburne reported excellent results.

Bryant ("Manual for the Practice of Surgery," Philadelphia, 1885, p. 992) writes: "(The surgeon) ought to guard against stiff joints in the treatment of those injuries by employing passive movements earlier in the progress of the cases than he has been wont to do."

"After this form of fracture the wrist joint rarely recovers its normal movement, some deformity permanently remaining, and of this the patient ought to be warned" (p. 880).

Moullin ("Surgery," Philadelphia, 1895, p. 413) writes: "It is always necessary to warn patients that Colles' fracture is liable to be followed by stiffness affecting both the fingers and the wrist, especially if there is any tendency to gout or to rheumatism. It is due in many cases to strain and adhesion of the flexor tendons, but it is made worse by rigid confinement. So far as the fingers are concerned it can be generally avoided. Passive motion must be commenced and thoroughly carried out from the first day. With the wrist it is more difficult, but on several occasions I have begun gentle manipulations on the fourth or fifth day with excellent results."

Walsham ("Practical Surgery," p. 427) writes: "Practice passive movement from the third day, as in this form of fracture the tendons, where they cross the back of the radius, the seat of the fracture, are apt to become adherent to their grooves. Remove the splints in about four weeks, and employ shampooing, friction with stimulating liniments, etc., till any stiffness of the joint or fingers has disappeared."

McClelland ("Civil Malpractice," New York, 1877, p. 8) writes: "Notwithstanding the exhibition of the utmost care in the treatment of fractures in the lower third of the forearm, there is always more or less stiffening of the wrist and fingers, a result due, almost, if not entirely, to fibrinous exudations into and around the sheaths of the tendons, and to the adhesions which necessarily follow this fibrinous exudation when the parts are kept at rest for a long time."

Professor Agnew (*Clinic*, Oct. 25, 1871) said: "Difficulty of motion in the neighborhood of joints was a common sequel of this fracture, and, even under the most careful treatment, was found to exist in a majority of cases. He thought it due, not so much to injury of the joint itself as to adhesions of the tendons over the seat of fracture, by which their play was restricted."

It can thus be seen that, since the recognition by Colles of the real nature of this injury, there has been a marked tendency till within recent years to overtreat it with more or less baneful results. Sir Astley Cooper advised that four or five weeks be let elapse before passive motion, in the aged, be attempted. He remarked that recovery is slow, it sometimes being six months before the finger motions were restored. Agnew, Bryant, Moullin, Walshe and McClelland all recognize that the stiffness of the wrist and fingers is due to fibrinous exudations around the tendon sheaths about the seat of the fracture. Bryant states that passive movements ought to be employed by the surgeon at an earlier period than has been wont; but that time he does not specify.

Moullin advises passive motions of the fingers from the first day, stating that this generally prevents stiffness of them. With the wrist, he states, it is generally more difficult (to prevent stiffness), "but on several occasions I have begun gentle manipulations on the fourth or fifth day with an excellent result." The writer believes that Moullin's very definite instruction in regard to passive movements of the fingers to be begun at once, and of the wrist joint on the fourth or fifth day, is good practice and that it ought to become general. All surgeons probably will agree with Roberts ("Fracture of the Radius," Philadelphia, 1897) that "the displacement (in Colles' fracture) is the result, not of muscular action but of the vulnerating force," and further, that "the muscular surroundings have little to do with the causation or continuance of the distortion." For this reason the fracture, if reduced, has no tendency to again separate. It would seem, therefore, that all that is needful after reduction of the fracture is some simple appliance that will protect the parts from accident during reunition, and that will not interfere with passive motion of the fingers from the first day. Swinburne's practice of many years ago, referred to above, was good, though his explanation of it, by the principle of extension applied to the parts, faulty. The writer in several cases, after reduction, has molded a piece of wood-fiber splint material over the dorsum of the forearm and hand in a semiprone position, the

hand in line with the forearm. This, bandaged over the parts, he finds sufficient protection for them. It does not interfere with passive motion of the fingers, and is readily removed and reapplied to permit of passive motion of the wrist joint. It is molded directly over the skin, and requires no padding or compress. In these cases he has carefully caused passive motion of the wrist joint from the fifth day, and discarded the splint on an average of about twenty-one days.

The writer believes that the treatment of Colles' fracture could thus be formulated: 1, Reduction, not always easy; 2, protection by a simple retentive appliance while correct reunition of the bone takes place; 3, passive motion of the fingers from the first day; of the wrist, carefully, from the fifth day.

99 Broadway.

## THE PASSING OF PLASTER.

Presented to the Section on Surgery and Anatomy, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

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At the Atlanta meeting of the ASSOCIATION, in a discussion before this Section, Prof. Thomas H. Manley of New York made the statement that "plaster-of-paris, as a routine treatment for fractures, should be discarded." The advanced ground taken by that able surgeon is certainly welcomed by the writer, who believes that plaster-of-paris, as a routine means of surgical fixation is doomed, and that its wane will be rapid because of its inherent defects and of the advantages possessed by its rival, wood-fiber splinting.

It will hardly be gainsaid that at present, particularly in the hospitals, plaster-of-paris holds sway as the routine treatment for most fracture cases. Routine, unless perfection has been reached, is baneful to progress in all fields of human endeavor. It can be so in surgery. Happily, however, in this field of activity, there are willing minds and hands to welcome whatever tends toward improvement in their art, and hence the power of routine is weakened; it can not strangle a new method without a trial by honest observers. It may seem an unimportant point whether plaster-of-paris or something better be used in cases requiring surgical fixation, but fractures are frequent and we shall always have them with us; any amelioration in their treatment or results deserves the attention of the profession.

In this brief article the writer proposes to state facts relative to the use of plaster-of-paris as a means of fixation, and of wood-fiber splinting used for the same purpose. A comparison of these facts will render obvious his reasons for believing that plaster, at no distant time, will be relegated to its proper place, a means of fixation to be employed only when more efficient materials can not be had.

1. *Facts of plaster-of-paris treatment of fractures.*—*a.* Plaster-of-paris is dangerous and sometimes deadly to the encased limb. F. H. Hamilton's testimony on that point is sufficient; many living surgeons can verify it.

*b. It does not*, as generally supposed, *immobilize the enclosed parts.* A moment's consideration makes one clearly understand how futile it is to expect immobilization of limbs swathed in soft and compressible cotton by a rigid bandage outside the cotton. Supposing the fixation to be efficient at first, it is soon destroyed by subsidence of swelling and, later, by tissue atrophy that always takes place in an idle limb.

*c.* It is destructive of the joint functions of injured joints, by preventing the timely application of passive motion to them. The timely application of passive motion to injured joints is an important indication in fracture treatment.

*d.* Plaster dressing prevents the surgeon's ready inspection of the parts treated, a condition not tolerated in an ordinary wound, and which, for as grave reasons, should not be tolerated in fracture cases.

*Addenda—Dangers of plaster.*—The dangers of plaster dressings can not be emphasized too much. Limbs have been lost by its use. The loss of a limb from any cause is fearful; from such a cause, horrible and indefensible. It could not occur if the treatment of such cases were to apply accurately molded splints retained by bandages, which should be removed daily as a matter of routine, until every iota of danger from pressure be gone. Such removal of bandages is easily and speedily accomplished, and allows the surgeon to *know* the condition of the parts he is treating—an impossibility with most plaster-of-paris treatment. Also, such removal of bandages permits of their snug reapplication over the limb and splint, thus producing and maintaining efficient fixation.

The writer recalls the experience narrated by an excellent surgeon at a medical meeting a short time ago, in which he told of a case of simple fracture done up in plaster. Everything apparently went on well, it being particularly noted that the patient's temperature remained normal, and yet, when the plaster was removed, the man's tibia was projecting through the skin and the limb bathed in pus. This could not have occurred if the case had been treated with wood-fiber splinting as above indicated.

The writer has seen a surgeon at a hospital remove a plaster dressing and find considerable bowing of the leg bones, necessitating a rebreaking of the partially united bones with great pain to the patient. In other cases permanent deformities have resulted. Wood-fiber splinting prevents such deformity by the efficiency of its fixation, or permits it to be detected in its incipiency, to the comfort of both patient and surgeon.

2. *Wood-fiber splinting.*—Before stating facts relative to the surgical fixation produced by wood-fiber splinting, a short description of the material and the mode of its application may be of interest. The writer described this material (the results of personal experiments, made in a pulp-mill) at the Milwaukee meeting of the ASSOCIATION in 1893. He was first to advocate its use in surgical splinting (at that meeting and again in a paper read at the Pan-American Medical Congress, Washington, 1893).

The material is made in large sheets, of two thicknesses, to serve all cases of splinting. A splint can be made by cutting a suitably shaped splint-blank from a sheet of the material, moistening it with water and bandaging the moistened splint-form over the part to be splinted. The shape of the blank varies with the case treated. The correct shape for the blank is readily gotten by cutting a paper pattern so as to enfold the parts in the manner we wish the completed splint to enfold them, and then, following this pattern for a guide, by cutting the splint from a sheet of the splint material.

In earlier papers, the writer advised the use of stif-

fening solutions, and several were designated, for moistening the material with. Water, however, is all sufficient, the material being made so rigid as to require no added stiffness. In compound fracture cases, a strong corrosive sublimate solution may be used to moisten the splint-blank.

The splint, having been made and applied correctly, will hold the parts to which it is applied in fixation from the moment of its retention by a roller bandage. It should be allowed to dry upon the limb, and after twelve hours the author's practice is to remove it, and then to reapply it, thus getting ocular testimony as to the condition of the parts.

*Facts relative to wood-fiber treatment of fracture.*—*a.* Wood-fiber is adapted to the treatment of fractures of all the limbs, it being moldable directly upon the patient's limb.

*b.* It produces immobilization of parts, because molded directly on them and retained thereon, without the intervention of cotton batting, which defeats our object if it be fixation. This efficient immobilization is easily maintained by keeping the roller bandage snugly applied over the resilient splint; thus, subsidence of swelling, or tissue atrophy need not interfere with the fixation produced by wood-fiber material.

*c.* It permits the surgeon to inspect at any time the fracture he is treating, by the simple unwinding of a roller bandage. The reapplication of the splinting is easy, there being no pads or compresses to become disarranged.

*d.* This ready removal of the splinting permits the timely application of passive motion to an injured joint. The preservation of the functions of neighboring joints should be a most important consideration in the treatment of fractures. When these joints are not involved in the injury which the limb has suffered, this consideration is not so necessary, for normal joints can be immobilized for a long time without serious damage to their functions. When, however, the joints are injured, and this is frequently the case in fractures, it is a serious matter to immobilize them as is done in the plaster-of-paris treatment. Passive motion of the joints involved at the earliest moment consistent with safety is the imperative indication, for both preservation of function, and the earliest return to normal use of the joint.

*e.* Wood-fiber material is lighter than any other splinting, and no complaint is heard from the patient because of its weight, even in cases where the hip and knee are together immobilized.

*f.* Wood-fiber material is strong, rigid and durable; splints made from it having been worn in some cases (hip fixation) for eleven months. The material is porous, clean, and does not irritate the skin; in many cases splints having been worn for weeks immediately in contact with the skin, and without excoriation of the skin resulting.

*g.* No padding is required with splints molded from wood-fiber material; in most cases it is applied directly over the skin. This is important, for how plaster-of-paris or other material can produce immobilization of the bones in a limb swathed in cotton batting it is hard to comprehend.

*h.* Wood-fiber material permits of rigid antisepsis in the treatment of compound fractures, both of the wound, always accessible by removal of the bandages, and also of the splint material by moistening it with a strong solution of corrosive sublimate. Plaster-of-paris as ordinarily applied is neither aseptic nor antiseptic.

*i.* Wood-fiber material is most pervious to X-rays, and does not interfere with fluoroscopy.

*j.* The mastery of wood-fiber splinting.

This mastery readily comes to one possessing a modicum of mechanical ability and who faithfully follows the simple directions given above. No more skill is required to attain it than is necessary to recognize and manipulate ordinary bone and joint injuries; if the practitioner has not that, he ought to let wood-fiber, plaster-of-paris and such injuries alone.

Besides this modicum of ability, the faithful following of the simple instructions is needful. This is illustrated by the experience of an orthopedist of considerable practice to whom a piece of the splint material was sent to be tried. He soaked the material in a pail of water, though the instructions directed that it "be moistened with water until semiplastic." For a result this gentleman had failure; he frankly acknowledged afterward to the writer, his recognition of the cause of his failure.

Though this mastery of the material were difficult to attain, it would be well worth the effort, for the compensatory complaisance which the practitioner enjoys in the conscious power to be able to splint any case that presents itself, he molding the splint to meet the indications of the individual case. Such splinting is scientific, since it presupposes that the practitioner *knows* the indications that should be met in a given case, and that he knows how to meet them. It contrasts strongly with the employment of manufactured splints, of which there are several varieties on the market, finely formed with beautiful curves and convenient angles; as a rule, however, we find that our patients have not been made to fit these machine made splints. An appreciation of this and of the practicability of employing wood-fiber led H. O. Marcy to state the rule, which it is believed will yet govern this branch of surgery, "The surgeon must make a splint to fit the limb, not the limb to the splint."

A demonstration of the practicability of living up to this rule is furnished in the splints here shown, each of which was molded directly upon the limb of the patient treated, and made of wood-fiber material moistened with water.

(Splints shown were used upon patients for fixation of the toes, ankle, bones of the leg, knee, hip, hip and knee together, thumb, fingers, wrist, bones of the arm and forearm, the elbow and the shoulder.)

In conclusion, the writer does not imagine that his poor efforts can change the general practice in the treatment of fractures much; but he hopes that some day the masters will cease for awhile their labor of climbing the Olympian heights of surgery to consider the facts of this fracture-treatment question. Their teaching, ultimately, he doubts not, will break the sway of the plaster idol, to the comfort and betterment of the injured.

99 Broadway.

DISCUSSION.

Dr. MCFARLAND of Pittsburg—I agree with the author in the treatment of Colles' fracture, but I can not coincide with him in so far as plaster-of-paris is concerned. We owe too much to it to discard it. The author laid much stress upon the cotton padding, but so far as my experience goes with fractures of the lower extremities the ordinary Buck's extension apparatus and the sand bag work very well. When the limb is in apposition and there is no disposition to displace-

ment we apply plaster-of-paris. So far as the cotton is concerned, we put it on with an ordinary roller bandage. It is very thin and will apply itself accurately to the contour of the limb just as well as wood fiber. Even in compound fracture it is possible to do very excellent work with plaster. It is inexpensive and to one who is familiar with it, it is not difficult to apply. Its weight does not enter greatly into the matter. With reference to the ambulatory treatment you must use plaster-of-paris, and it gives us good results. Plaster-of paris has stood the test of time.

Dr. McConnell of Pennsylvania—The author objects to plaster of-paris because it does not immobilize the joint that is injured. I think a number of the bad joints that we have today are due to the too early commencement of passive motion. I think I would be opposed to plaster-of-paris if I used it the way they do in Boston. I do not put cotton batting next to the limb and I believe a very few of us do. We apply a piece of canton flannel first, then four or five folds of plaster-of-paris bandage, placing the soft part of the flannel next to the skin. On the outside of the plaster we place another piece of the flannel. When we want to examine the limb we can take the anterior part off for this purpose. I do not think there is anything against plaster-of-paris, but the fault is the lack of brains of the operator.

Dr. Murray of Michigan—I have used plaster considerably, and have also used silicate of soda, especially in compound fractures. I take the injured limb, measure the limb of a well child of about the same size, make my plaster-of-paris bandage over the limb of the healthy child, and after a few hours remove it and apply it to the injured limb. I apply the plaster to the under surface and hold it in place with adhesive plaster. This makes a light plaster and the person can walk around with perfect ease. To my mind the silicate is better than plaster-of-paris. So far as thickness is concerned, from four to six bandages are sufficient. Any old piece of cotton that you can find around the house will answer for the purpose. You can apply it at once in any ordinary fracture, or the second day after you have made your bandage over a healthy limb.

Dr. R. H. Sayre—I would like to say a word about Dr. Swinburne's method of making extension of the fragments. He would apply plaster upon your arm and make traction upon the hand until he has the bone adjusted. The great point in the treatment of a fracture is to reduce the bone first. He would then reverse the two ends of his adhesive plaster, so as to hold the bone in position. With regard to the question of plaster-of-paris, I think a great deal of unjust blame has been put upon it by the reader. It seems to me the blame should be put upon the surgeons who apply it. Concerning the statement that plaster-of-paris has caused limbs to be lost, the sloughing which has occurred took place before the application of the plaster or the blood supply was suddenly interfered with. If the plaster was not put on too tight there would be no sloughing. A simple string around the finger will stop the circulation and bring on sloughing, and silicate of soda or anything else will do the same thing when improperly applied. It is said that plaster-of-paris does not immobilize the joint, but that depends upon the way in which it is put on. If you have a very fat woman with very small bones and you put on plaster-of-paris, unless you tie it down her bone will certainly wobble. If you put the plaster on outside of the stocking it will often answer perfectly well. Instead of taking six hours to dry, it takes but fifteen minutes. With a jack-knife you can cut it from one end to the other and take it off at your pleasure. If the case is a very fat one you can remove a sufficient slice from each side and thus make it fit admirably. In some cases you want more resistance than this particular kind of splint will give you. I have never seen a leg like these splints seem to have been applied over. This material is excellent and is lighter than plaster-of-paris, which is an advantage, but I think it is unjust to speak against any material that may be used, if the fault is in the mode of applying and not with the material itself. Regarding the advantages claimed for this material, the plaster-of-paris seems to have the same advantages.

Dr. McClelland of Ohio—I have used this material in my practice for many years, but I now use plaster-of paris more than ever. Other surgeons in my town have used both. I agree with our Chairman that the trouble seems to be more in the way the surgeon handles the case than the material. Sometimes bad results will follow, no matter what the material that is used.

Dr. Hill of Vermont—One of the great advantages in the applying of plaster-of-paris is that you need not handle the broken limb. To persons who are nervous, this is certainly a great advantage. Another good point is that we see our fractures come out of the plaster in good condition. This is due largely to the fact that nature has been left entirely alone and given an opportunity to complete her work. It is often difficult in the country to hold a limb in exact juxtaposition. We owe a great deal to plaster, for we need not feel anxious after we have properly applied it.

Dr. J. McFadden Gaston of Atlanta—If the bone is kept too quiet we sometimes fail to get good results, and this is especially true where the plaster-of-paris is applied under certain conditions. I sometimes rub the ends of the bone together so as to set up an inflammation, and then put on the plaster afterward. I always leave an opening in the plaster so that the limb may be inspected. Pasteboard splints are most admirable substitutes for plaster-of-paris. Silicate of soda is the most admirable dressing. It makes a light splint and is well adapted to all fractures. It can be applied at any time. In discussing the use of splints, we must not forget that the two leading parts in the treatment of fractures is first, to properly reduce them, and second, to keep them reduced.

Dr. G. G. Davis of Philadelphia—Silicate of soda bandage is very good, but it must be used in a certain way. I prepare my bandages by means of a bandage roller. I make a V-shaped box with a handle at the top and a ledge near the bottom. This box is filled with silicate. The bandage goes over the edge of the box and is wound on the winch. Bandages made in this way will keep indefinitely and are always ready for use. This is especially advantageous for those who do not have ready access to a drug store. When I take them out I roll them up in wax paper. In applying them I simply put a layer of cotton next to the limb and then put on one of these silicate bandages. I use strips of rubber or something like that to prevent the bandage from wrinkling. I then apply additional silicate but not too much, and after this another bandage is applied. The leg is allowed to remain on the surface of the clothes, and the next morning the bandages are dry and hard. You can readily make openings in this if you wish to remove it. If you wish to reapply one of these dressings as is frequently desirable in the after-treatment you can very easily do so. This method also does very well for a brace for a child. It can also be applied in such a way that it may be laced with a corset string so that it can be taken on or off at will. By applying shellac they are made much more durable. You must adapt your dressing to your case, and I do not think plaster-of-paris is as well adapted for this treatment as the silicate.

Dr. Fowler—The fact is that about three-quarters of malpractice suits are brought for bad results following the treatment of fractures. It is important to be able to inspect the injured parts after the bandage is applied, but this is not an objection to plaster-of-paris. In many instances bad results are due to carelessness of the patients. Plaster-of-paris and pasteboard might be employed together, or at different stages both may be used alternately. This is a subject too vast to be discussed fully here. The use of silicate of soda is open to the objection that unless there is something to hold it in place it is almost impossible to prevent the distortion of the parts and the occurrence of unsightly and uncomfortable wrinkles. An attempt has been made to make a spinal jacket of silicate of soda and the result was the combining together of silicate of soda and plaster-of-paris. The method is to first apply an ordinary silicate of soda dressing and over this a dry bandage; then the plaster-of-paris is applied. This is allowed to stay until the silicate of soda is hardened, probably some days. At the end of this time the plaster-of-paris is cut away and the silicate of soda then assumes the entire responsibility. It is useful in some cases where the person is weak and broken down by disease. Without the plaster-of-paris it would not have been possible to achieve success in the treatment of fracture, and without this substance and and also silicate of soda, pasteboard, etc., it would have been absolutely impossible to have been successful in the ambulatory treatment.

Dr. Tracy—It has been urged against my method of wood-fiber splinting that it could not be used in the ambulatory treatment of fractures. In answer to this objection, I am happy to state that a case of fracture of both leg bones near the ankle treated successfully with wood-fiber, ambulatory treatment was reported by me before the New York Society of Medical Progress, in March last. The use of passive motion to injured joints is advocated at the earliest moment consistent with safety. The surgeon treating a case must be the judge of that time. In this discussion, not indeed anticipated, statements have been attributed to me which will not be found in my paper and I feel that when it is read at leisure by the members that they will be more likely to agree with me in the conclusions arrived therein. Reference has been made to the use of silicate in the treatment of spinal troubles. The spinal jacket which I now exhibit to you was molded directly upon the body of a child—a patient of the Boston Children's Hos-

pital, a case of Pott's disease—and worn by the child during the past year. This was done through the courtesy of Dr. Bradford of Boston. The jacket is made from wood-fiber material and, as has been said, was molded directly upon the child, without the aid of the plaster cast used in the ordinary method. This direct molding was possible with the aid of my machine for the control of the spine, by which traction in any desired degree, together with lordosis of the spine can be produced simultaneously. [The machine is described and pictured in the Boston *Medical and Surgical Journal*, Oct. 1, 1896.]

In conclusion, I would state that no other gentleman present has used the wood-fiber splinting described in the paper, and for that reason more words in its favor are wanting. The material referred to by Dr. McClelland is not the same as that which I have exhibited to you.

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## RENAL SUPPURATION, CATARRHAL, SPECIFIC AND TRAUMATIC, AND THE VALUE OF MICRO-URANALYSIS OF THE URINARY SEDIMENT AS AN AID TO DEFINITE DIAGNOSIS OF IT.

Presented to the Section on Obstetrics and Diseases of Women, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

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(*Concluded from page 990.*)

*The morphologic examination of urinary sediment as an aid of dominant importance in the diagnosis of renal suppuration.*—Renal abscess or ulceration of the kidney has only comparatively recently been added to the nosology of serious pathologic lesions. Its ready and definite recognition, with an accurate knowledge of its etiology, with our modern precise and effective treatment of it, makes one of the grandest achievements of the art and science of surgery in the nineteenth century.

For a long time past, for say thirty or thirty-five years, since, in fact, the study of the histologic elements of the human body began to assume the aspect of a science, more or less importance has been attached to the significance of the morphologic elements found in the urinary sediment, as an important though indefinite auxiliary in the diagnosis of renal suppuration.

M. Alberan was among the first to utilize this aid in the diagnosis of tuberculous kidney, and his distinguished master, M. Guyon, has long since admitted the great semiologic value of uranalysis in suspected renal abscess. In the colossal work, however, of systematically arranging, grouping and classifying the different varieties of pyuria, the late Dr. Carl Heitzman was the pioneer and founder. As early as 1879 we find his first contribution on this important subject; but for some years before his death—January, 1897—he had placed it on a solid and enduring basis, and for this alone he has left the medical profession under eternal obligations to him.

*Anatomic and pathologic data.*—In order that one may intelligently interpret the morphologic atoms found in pyuria, it is essential that we have a familiar acquaintance with the finer anatomic atoms and the structural composition of the genito-urinary tract, besides the difference in function and histologic composition in the two sexes.

*Pathology and urinary analysis.*—It goes without saying, that, besides a knowledge of the normal structures and secretions, we must be acquainted with the anatomy and histology of the urinary organs before we undertake a microscopic examination of the diseased elements found in the sediment of the renal excretion. We must have a special training in urinary analysis; as a general knowledge of the microscope will serve us but an indifferent purpose when we come to purulent urine. It is important, then, that there be a clear understanding on this point at the outset, else chagrin and disappointment are quite certain to follow.

*The urine in renal suppuration, or purulent catarrh.*—In order that we may eliminate error or confusion as far as possible, in all cases, it is well to exclude suppurative conditions along the lower genito-urinary tract; the vagina, the uterus, the Fallopian tubes or the urethra; and in the male, the urethra, the prostate or the seminal vesicles.

Having excluded these, as free, we next approach the bladder. For various reasons we meet with many difficulties here; not in recognizing the presence of cystitis, but its various types.

*The urinary sediment.*—It has already been stated that the presence or absence of renal pus in the urine, of itself, under many circumstances, is an indefinite quantity in diagnosis.

Thus, in chronic catarrhal nephritis in strumous individuals, epithelial degeneration and morphologic reversion of histologic elements and suppurative discharge, so-called leucocytosis, may go on over a long period without hyaline degeneration, interstitial or organic changes in the renal substance supervening. Neubauer and Vogel record a case bearing on this point, which very well demonstrates the tolerance of the system to pyuria in certain individuals. Their patient was a man who was under treatment for rheumatism, when it was accidentally discovered that he was periodically discharging great quantities of pus in the urine. And yet there was no evidence of any lesion along the uropoetic tract.

Suppurative or ulcerative inflammation of the peripheral type, involving the surface layers of the epithelia or the mucosum of any area of the mucous membrane of the urinary tract up into the tubular structures of the kidney, always gives issue to a purulent admixture of the sediment in the urine.

But when we have an infection involving the interstitial connective tissue elements in the renal tissues, we may have a large purulent collection, without any of it making its way out through the urinary passages. The same absence of pus in the urinary sediment may obtain in cases of calculous impaction of the ureter, or cicatricial stenosis consecutive to ulceration.

*The composition of the urinary sediment in purulent urine.*—Aside from mineral and nitrogenized elements in pyuria, in the sexes, we have invariably epithelial elements, pus corpuscles, shreds of disintegrated connective tissue, and commonly more or less blood discs, according to the degree and site of inflammatory action.

Large quantities of pus in the urine, of a vesical or renal origin, *is always more or less ammoniacal.* This decomposing animal matter greatly accelerates fermentation of the healthy secretion, and this in turn imparts an *alkaline reaction* which, acting on the urine, induces again a *saponification*, a transformation of pus into a ropy, tenacious mucus. This chemic change is more common in some specimens of urine than in others; its degree depending on extent of urinary stagnation as well as the condition of the mucous membrane of the bladder; and hence there may be discharged from the weakened, anesthesic bladders of old people urine primarily, freely inter-

mixed with pus, yet on examination but few or no pus corpuscles can be found.

*Periodic admixture of pus in the urinary sediment.*—In every variety of pathologic lesion along the genito-urinary tract, attended with issue of pus, its presence in the urine is very intermittent. as are also the proportion of epithelial elements, and the seminal and proteid substances discharged.

This is a striking characteristic and an important feature to note in pyuria of every description, but in none is it so constant and striking as that of a renal or vesical origin.

In abscess of the kidney, in pyonephrosis and pyelitis, pus may be discharged with the urine only at considerable intervals of time. But when the patient is suddenly seized with violent colicky pains polyuria, vesical tenesmus and cystic irritation follow, pus flows off with the urine in great quantities. Relief succeeds and pus disappears from the urine, sometimes completely, for several months at a time. The same phenomenon may be observed in pyelonephrosis. In pyelitis of a catarrhal origin, intermittency of pyuria is one of its most salient clinical features, the purulent escape being largely influenced, or at least temporarily suppressed, by the effects of exercise, diet or exposure.

*The varieties of pyuria. Anatomic.*—Pyuria from the standpoint of anatomy may be divided into: 1. Urethral. 2. Cystic. 3. Renal.

Pathologically, we have, in their order of frequency: 1. Infection: *a*, tubular, by the mucous membrane, ascending, the most common; *b*, by the blood vessels, vascular, or descending. 2. From mechanical and chemic influences; from the extravasation of blood lithiasis, or any description of obstruction, by stricture, neoplasm or other physical impediment.

The most common type of purulent urine is urethral of a specific origin. This is readily differentiated, both by clinical evidence and simple tests. But when we have suppurative catarrh of the deep urethra there is a back-flow into the bladder, which may or may not provoke a septic cystitis.

It therefore follows, when we have infection from extrinsic sources, we may have a coexistent inflammation of the bladder with a urethritis, which will yield mixed morphologic elements, when the definite isolation of one from the other is impossible, except by a careful microscopic examination.

Hyperacidity of the urine is a well-known cause of vesical or urethral irritation; the pungent urine acting with great energy on the surface epithelia. In a similar manner do we have that most distressing type of chronic cystitis, consecutive to intrinsic renal suppuration of the kidney; when, again, we have simultaneously discharged with purulent urine an admixture of the finer anatomic elements of both the kidney and the bladder. It has not been my experience that urethritis is a concomitant lesion with chronic renal suppuration. The urethral mucous membrane seems to resist the invasion of pathogenic microbes which act with great energy in the kidney or bladder. But we have evidence, from ultimate pathologic changes and other reliable data, that in all cases of renal suppuration the loose vascular mucous membrane of the ureter on the side involved is the seat of inflammatory changes.

Descending ureteral infection succeeded by the draining away of pent-up ammoniacal urine, in time leads to destruction of the surface layer of the ureteral mucous membrane, to patches of erosion, submucous induration, or atrophic changes and great dilatation on either the renal or vesical end. And again, we find in the records, some rare cases of pyonephrosis, in which the ureter on the affected side throughout its entire extent is enormously dilated.

This was most conspicuous in one of Dr. Myles' cases. Speaking of the ureter, as found on autopsy in one of his fatal cases, he says: "It was greatly dilated; below it was about the size of the small intestine, rapidly enlarging from below upward; at its pelvis it was fully equal in size to one of the sacculi of the colon. It formed a huge pear-shaped reservoir for the urine, evidently acting as a supplementary bladder."

It is in this class of advanced destruction of the histologic elements of the kidney, the ureter or the bladder, that a morphologic examination of the urinary sediment alone will not always reveal the exact seat of pathologic changes, or rather, where they began.

From the foregoing it is clearly apparent that pure unmixed renal pus is seldom found in the urine; that from the bladder or ureter being generally intermixed with other elements. The special features of the purulent products of balanitis, urethritis or the prostate can not be considered here. Our investigation must be restricted practically to the bladder, the ureter and the kidney; for though we may have uncomplicated suppurative cystitis, clinical and morphologic evidences point to the conclusion, that in all severe or protracted forms of renal suppuration, cystitis is invariably a concomitant condition.

It is highly important to always note the difference of the sexes in the qualitive analysis of pathologic urinary sediments, and in all cases of suspected renal suppuration in women to be certain that we eliminate the accidental admixture of muco-purulent discharge through the vulva from catarrhal or ulcerative conditions of the mucous membrane of the vagina, the the cervix, the endometrium or the Fallopian tubes.

When any of these conditions co-exist with renal disease, the only means by which we can exclude their inflammatory elements from intermingling with the urine is by drawing it directly from the bladder. Catheterization of the female bladder, however, should not be employed as an *en courant* procedure, or in any instance, unless cystitis already exists.

It is true that a microscopic examination in experienced hands will readily exclude uterine or vaginal inflammation, but with discharges from the tubes there remains some doubt. We may generally exclude every description of urethral pus from the urine of the male, by catheterization.

The urethra may be first irrigated, then the catheter is introduced. As the mucous membrane of the bladder in the male is altogether more tolerant than in the female, we may have but little fear of subsequent cystitis, provided clean tubes are employed.

Some authors advise, in doubtful cases, that the patient retain the urine as long as possible, then having passed off the first half the second is collected, which if it exhibit pus it must necessarlly be from the bladder or a source above; but this is a fallacy, of practically no value whatever in obscure or doubtful cases. In most laboratories but little if any consideration is given, as to how the urine is collected, as some microscopists claim to be able to decide the source of all urinary sediment by their morphologic character alone. It is my opinion and belief, nevertheless, that

this is a mistake, for while conceding the present marvelous perfection of morphologic uranalysis it by no means follows, that we should not obviate as far as possible every source of error or confusion.

*The diagnostic significance of anatomic elements in the urinary sediment of renal suppuration.*—The presence of the detached epithelial elements in pyuria definitely stamps its origin. In the near past it was regarded a great advance when the microscope with unerring precision revealed the presence of papilloma, of epithelioma and ulcer of the bladder, but now morphologic science has widened the field of diagnosis far beyond the dream of the most sanguine.

The *modus operandi*, the technique and knowledge of the art of microscopic uranalysis is too large to enter into here. It is quite enough to again repeat in this connection, that the knowledge of the average microscopist will be of little value to him, without special training, opportunities and experience.

Ambitious, enthusiastic investigators have not stopped at the study of the histologic elements of the urine, blood, pus, epithelia and the structural elements, but have now utilized their knowledge in ferreting out the specific character of the various lesions along the urinary tract, by isolating their characteristic microbic elements, the pathogenic and non-pathogenic.

For a complete study of the more ordinary infections of the genito-urinary organs the reader is referred to the excellent monograph of Mechoir.

*Ammoniacal or putrid urine.*—In ammoniacal purulent urine the tableau is completely altered, for not only are new salts generated, but also the purulent constituents of the urine are radically altered, and besides, albumin or some chemic substance analogous to it is invariably present.

Morphologically speaking, we sometimes have in this type of pyuria, a quite complete absence of unbroken pus corpuscles, these having undergone disintegration and saponification by the pungent ammoniacal alkali in the bladder.

As the patient voids this urine we may find it highly charged by a tough ropy mucus, with no pus; but if we wash out the bladder and later catheterize, an abundance of unchanged purulent deposit will be found. This, as will be understood, applies only to those cases in which the pus has not been pent up in the renal pelvis, or an abscess cavity, and there is a free unimpeded drain of it off by the passages.

*Albumin in the urine and acid urine.*—Before fermentation begins in urine of acid reaction, when properly preserved, we will find no other evidence of molecular disintegration of the cells than that dependent on disease.

In strongly acid urine the pus is commonly found lying in coagulated flocculi, the superabundant fluid above being clear and transparent.

In this description of purulent urine we will sometimes find a complete absence of albumin. Most authors maintain that purulent urine is albuminous, which no doubt is correct of the ammoniated and purulent; but in one case under my care last winter (1896–97) of the most aggravated renal pyuria, in a considerable number of the specimens examined albumin was entirely absent. This was probably the result of fresh pus being discharged immediately on reaching the bladder before putrid changes began.

It is well to remember then that the absence of albumin as determined by the chemic test is no proof that pus is not present.

This may also be verified in the case of a physician recently under my care, who had a purulent kidney on he right side.

As we may well expect, the organic changes in the histologic elements of the urine when putrescent decomposition has begun are very well pronounced. In all these cases septic infection has spread to the bladder, when there is an exfoliation of pavement or cuboidal epithelia, or in places ulceration may penetrate all the strata of the epithelia and involve the vascular layers of the submucosum.

CASES ILLUSTRATIVE OF THE VALUE OF MORPHOLOGICAL URANALYSIS AS A MEANS OF DIFFERENTIAL DIAGNOSIS IN RENO-VESICAL LESIONS.

*Case 1.—Appendicitis with ulceration into bladder; history.*—J. S., male, 36 years old, liquor dealer, married. Had a soft chancre when 22 years old; later had syphilis. Four years previously, while serving as a sailor, patient was taken, in Bermuda, with inflammation of the bowels. From this he slowly recovered, though for some time after being about had trouble voiding his urine; but after about six months this passed off. One week before I saw him he was seized with severe pain in the right side, with chills and fever. The usual domestic remedies were applied, when on the fourth or fifth day the pain in the abdomen moderated, but his former bladder trouble again commenced. When he came under my notice his general condition was very bad. He had high fever, with exhaustive sweats, little or no sleep and great exhaustion. His vesical trouble was distressing, requiring almost constant straining in urination. He had a tympanitic abdomen with marked tenderness over the hypogastrium, the right iliac fossa, and further up over the ascending colon.

The clinical features of this case, in several striking particulars, pointed to pyelonephrosis. The primary fulness in the flank, which we may look for in displaced, enlarged, purulent kidney; the polyuria, with abundant discharge of muco-purulent material in the urine, all rather inclined to the possibility of renal abscess. On the other hand, the abdominal condition, tympanites, etc., lead one to suspect a recurrent appendicitis with probable discharge of abscess into the bladder. In order to determine the source of the pyuria, uranalysis was made of the urine, showing, specific gravity, 1.030; alkaline reaction; no sugar; slight shade of albumin present.

Microscopic examination: Pus corpuscles were abundant and surface bladder epithelia; a few blood discs, shreds of connective tissue, with crystals of margaric acid, cholesterin, particles of undigested muscle fiber, fat and starch globules. This examination, then, decided beyond question the fecal admixture in the urine. It was then advised that an operation be immediately performed to drain the pus out, by a free incision in the abdominal wall. The family physician, Dr. Thos. Kelly, was not in accord with me on the presence of appendicitis, yet consented to and kindly assisted me in the operation. On free incision the base of the cecum was reached, when a vast abscess cavity was opened, widely distended with pus and feculent matter. No search was made for the appendix. A wide breach was made for free drainage. From this time the vesical symptoms commenced to yield, and within a week the urine cleared up and micturition was again normal.

In the above case the incipient and spasmodic pain in the side, with localized tumefaction and marked tenderness up along the ureter to the kidney, disappearing, in a large measure, with the advent of the large discharge of pus by the urine would lead one to infer renal abscess. The tumefaction of the abdomen might also have proceeded from a propagation of infection through the perinephric tissues.

*Case 2.—Cancer of sigmoid flexure, with invasion of bladder; history.*—About three years ago I was invited by Dr. S. Waterman, of New York, to see an aged physician suffering from a most distressing cystitis. The patient was 76 years old, and for some years past had suffered from prostatic tumefaction and vesical irritation. When I saw him he had high temperature, was much emaciated and suffering great pain in the hypogastrium, especially on urination, which was frequent, especially at night. It was learned that he had had a most aggravated form of constipation for the preceding years; but now diarrhea was nearly constant and sometimes there was fecal incontinence; but he assured me his bowels were "well enough" if we could only relieve the bladder. On exam-

ination a large mass was detected in the left inguinal fossa, extending up along the descending colon. This was quite hard and insensitive to moderate pressure. The hypogastrium was highly sensitive and there was evidence of considerable vesical distension. He was obliged to introduce the catheter to draw off the urine, which was daily becoming more and more highly charged with mucus and more difficult to drain off. By rectal examination it was found that the prostate was but little enlarged, and that in one lateral lobe only. Carrying the finger further up, to the point of the peritoneal reflexion, a hard nodulated mass was found impacting the lumen of the rectum. It was clearly evident, therefore, that we had an impaction of the sigmoid flexure of the colon, with mechanical impediment from a neoplasm, the weighted over-expanded bowel falling over forward and compressing the bladder walls. Microscopic examination of the urine, as in the preceding case, exhibited much pus, the detritus of decomposing ammoniacal changes, with a large number of blood discs and fecal elements. This provided us with conclusive proof that the growth in the intestinal wall was malignant, and that it advanced forward over the recto-vesical septum and opened a communication with the bladder.

In this case, morphologic examination having decided definite diagnosis, we were enabled to advise appropriate measures for relief. The day following I performed Madyl's operation for an artificial anus. The relief of the vesical symptoms following was most gratifying. By keeping the bladder well irrigated and drained by the urethra much relief and comfort was enjoyed, until the diffusion of the cancer elements, three months later, choked up the ureters and induced fatal uremic poisoning.

*Case 3.—Fecal impaction of sigmoid flexus; history.*—Four years ago last April Dr. Wm. S. Gaudineer of New York requested me to see a young woman who a few days before had an abortion, and was, among other things, suffering from severe cystitis, with a large fulness in the left groin. The Doctor brought a specimen of the urine when he came for me. A chemic and microscopic examination of it precluded any possibility of a suppurative lesion of the bladder or kidney. The urine was highly acid and slightly clouded with mucus, but contained few pus corpuscles and few epithelia. When I arrived at the home of the patient I learned that she was unmarried, and that she had probably provoked the miscarriage herself. She had a temperature of 104 degrees, with a quick pulse, considerable thirst and nausea. It appeared that after the fetus came away catheterization was found necessary, but this was immediately succeeded by a painful cystitis.

The abdomen was tympanitic and everywhere sensitive. On the left side, rather inward toward the median line, there was a distinct fulness. On questioning the patient closely, it was learned that she had had no movement for ten days, although she said that this was of no consequence, as she had often gone two weeks without a motion. As she was everywhere sensitive, in the vagina as well as externally, it was decided to anesthetize, place her on a table, and then examine with the abdominal muscles relaxed. By bimanual examination it was easier to outline the mass in the pelvis, which by exclusion we decided was probably a fecal accumulation.

It was agreed that we should again see the patient the following day if there was no improvement, but that evening, within an hour after we left, the patient had an enormous alvine evacuation, which was followed by relief of all her symptoms.

In this case, although the symptoms pointing to renal or vesical lesion, *ab initio*, were not prominent, yet some features of her history suggested this possibility. She had once had gonorrhea, and later had been told that she had a displaced kidney, circumstances by no means to be overlooked in pelvic inflammation, but uranalysis eliminated both decisively, at least as causative or consecutive to pyonephrosis.

*Case 4.—Intermittent pyelonephrosis; right side.*—Three years ago a case of renal suppuration came under my care which presented several quite unique features.

*History.*—Patient a female, single, virtuous, 24 years old; both parents died of pulmonary tuberculosis. She enjoyed good health until one year before, when she became sensible of a fulness in the right lumbar region, advancing forward. Soon after this she was seized with severe sciatica in the affected side. For nearly three weeks this persisted in a severe form, when one night while in bed she was suddenly taken with severe cramps and colicky pains in right side of abdomen. After taking hot drinks and freely using fomentations, the pain gradually subsided, but free urination began, and she alleged that during the next twenty-four hours she passed nearly a gallon of a thick milky-colored urine.

At the time she came under my notice she was in fairly good health; she had a fair muscular development, but was rather pale. The temperature was but 100 degrees, and the pulse but slightly accelerated. The bowels were regular, and she was passing a normal quantity of pale, limpid urine. She complained of having suffered from leucorrhea off and on for the past ten years. On examination of the abdomen, a well-defined fulness was apparent on the right side, impinging forward and slightly downward. When she assumed the prone position this tumor could be recognized only by the sense of touch on palpation, which every time, on deep pressure, provoked a desire to urinate. As she lay on her back it was possible to move the mass slightly in an inward and outward direction.

As the symptoms present implied no urgency in treatment, palliative measures only were recommended. Some of the urine passed that day I was enabled to secure for examination. It was of an acid reaction, and contained no albumin or sugar. Under the microscope, besides the ordinary visceral sediment, pus corpuscles and renal epithelia were found; but few surface pavement epithelia were present.

Two days later she commenced to pass pus in large quantities with the urine. On examination of this, the change noted was most extraordinary. The consistence was nearly that of gruel. Reaction was strongly alkaline, and the urine emitted a sharp ammoniacal odor. This discharge continued four days. From this time the purulent and epithelial elements became more scanty, and in ten days had disappeared. It is needless to add that with abundant pyuria the tumor in the loin commenced to recede, and finally vanished.

In this instance, the underlying pathologic process was tubercular. Its clinical features pointed quite conclusively in that direction, though I have been lately informed that she is now well, and never had another attack since; a circumstance, too, peculiar to that mysterious malady, which sometimes for years remains latent, again carries one to death's door, to undergo arrest, with recrudescence perchance, after years, or never in one's lifetime give further trouble in the affected organ.

This is the only instance of recovery from pyelonephrosis which I have observed in women.

*Case 5.—Pyelonephrosis; chronic; right side; history.*—Patient, 50 years old, married, of a rather slight build, but considerable endurance. Followed the occupation of a seamstress before and after marriage, and had one child, now grown. She first came under my care four years ago, for treatment of irritable ovary on right side. I then lost sight of her, until August, 1896, when I was called to attend her for a very painful form of cystitis. At this time, she had become greatly wasted, anemic, care worn and melancholy. She was practically a confirmed invalid, but by dint of an undaunted spirit managed to keep about a part of the time. She had in vain tried regular, irregular and quack practitioners, but without any permanent relief.

Realizing that the case was a grave one, I made a very complete examination of the general system and the organs.

She had a low grade of fever with thirst, no appetite and no rest. Vesical strangury and vesical tenesmus made her life one of constant torture. The wasted state of the body rendered an examination of the organs an easy matter, as everywhere over the spine and hips the angular curves of the bones stood out prominently under the integument.

Exclusive of the vesical territory, which was a constant source of uneasiness, she complained of occasional darts of a burning pain up along the course of the ureter over the crest of the right ilium. Down in the iliac fossa on the same side, on moderately deep pressure, there was experienced a sense of soreness and pain, and a little further up a movable mass, could be detected. By vaginal examination nothing definitely was reached except extreme sensitiveness of a contracted thickened bladder and an impacted rectum. No evidence of any lesion on the left side of the abdomen or pelvis could be discovered. Thorough clearing of the colon afforded some relief, but the painful polyuria persisted with evidence of marked con-

stitutional disturbance. There was nothing in her history elicited that suggested her ever having had an attack of gonorrhea. Nor was there any evidence of visceral tuberculosis except, possibly, along the urinary tract; nor was there anything pointing to rheumatism or gout. She micturated as often as twenty to thirty times in twenty-four hours; even then, in the warm weather of our New York summer. Every discharge of urine was blended with pus and mucus.

*Microscopic examination* revealed the presence of abundant leucocytes, renal and bladder, epithelia, with other evidences of abscess and ulceration. She manifested a positive repugnance to any surgical operation at first, and for the following four months continued to suffer from vesical distress and constitutional exhaustion. Finally, when her general condition became desperate, she insisted on relief by any means possible.

On operation it was found that the right kidney had descended to the iliac fossa. It was nearly as large as the fetal head. After removal, on transverse section it was seen that but a thin layer of the cortical substance remained, all the secreting tissue having been replaced by very large loculi of thick purulent material. There were no calculous elements found.

This case was one, in which the morphologic examination of the urine, again, established beyond question, the precise character and location of the pathologic process. Repeated uranalysis in this instance too, exposed many of the fallacies current in many of the text-books, on the chemic and anatomic elements found in pyuria, *e.g.*, that very purulent urine is always alkalin, that renal epithelia are present only in the early stages, or only when the pus corpuscles are relatively scarce. I might add, in this as in others of the same class, that repeated attacks of severe sciatic pain were experienced in the advanced stages of the disease.

*Cases 6, 7 and 8.—Unilateral pyelonephrosis; lithiasis*—As these three cases belong to the same class the salient features of all may be described together.

*History.*—One was a physician of robust physique, 35 years old; one was a cabman, 33 years old; one was a grocer, 40 years old. All were married and all were steady but not heavy drinkers of malted light liquors. In all, the right kidney was the one involved. Except the renal trouble all enjoyed good health. In all, their attacks were intermittent; at times there being intervals of several months without any discomfort whatever being experienced.

In all, their attacks were of an extremely acute type, the spasms of pain at the outset being of a most agonizing character. But when polyuria and pyuria set in, relief came and remained. In all these cases at the outset of the attack there was marked fulness, muscular rigidity and tenderness over the renal areas of the side involved. In *none* was there anything more than slight and transient cystitis. All at various times had passed oxalate of lime or uric acid calculi.

*Chemic and morphologic analysis of the urine.*—In these cases, at the outset of the attacks the urine was strongly acid, then feebly acid or neutral, to again, after a few days, become acid. In all, in the early stages, when sanguinous admixture of the urine was marked, sero-albumin was present; but as the blood globules disappeared and leucocytosis set in, after the sediments were well settled, the decanted urine contained no albumin. Early microscopic analysis in all cases, exposed two distinct classes of physiologico-pathologic substances, *non-inflammatory* and *inflammatory*. 1. An excess of mineral elements, the crystals of oxalates and urates, with a free admixture of coagulated fibrin and blood corpuscles. In some urinary evacuations the quantity of mineral sediments and detritus was very large for the first or second twenty-four hours. 2. After the intensity of the attack passed off the febrile reaction of the system was attended with free leucocytosis and the shedding of renal casts and epithelia, none except the surface layer of pavement epithelia of the bladder, were present in urinary sediment.

The three cases above were typical and illustrative of *periodic* pyelonephrosis dependent on urinary excretions, uric acid or oxalate of lime or the phosphate, primarily in the tubules of the cortex, then entering the pelvis to become later engaged in the ureter.

The volume of some of the calculous masses which make their way down to the bladder demonstrate the remarkable expansive properties of the healthy ureter. It is possible that the passage of these not only provokes the agonizing pain of renal colic, but also mechanically produces an erosion of the innermost strata of epithelia, a contusion of the deeper sub-mucous, vascular layer of connective tissue, or even a laceration in places completely through the mucous investment.

The excess of mucus, the blood pus-corpuscles, shreds of connective tissue and even ammoniacal urine with the triple phosphates, are all the immediate effects of this practically traumatic and now septic process; simply elements in the evolution of repair of a damaged structure.

This type of lithic pyonephrosis though tending toward spontaneous recovery in the young and vigorous, may under conditions of reduced health, or if it be accompanied with a tubercular cachexia, give rise to grave local changes and necessitate the intervention of surgery for its alleviation or cure.

No doubt, the use of the endoscope or the ureteral catheter might enable us to more definitely fix the organ involved; but as a rule the clinic symptoms with uranalysis are sufficiently emphatic and positive without resorting to their employment.

*Cases 9, 10 and 11.*—The following three cases came under my observation during the past winter. They were females; in two malignant disease was suspected. They were seen in consultation with Drs. J. A. Hoffheimer, John Martin and Charles F. W. Horn.

In Dr. Hoffheimer's case, pyloric cancer had been suspected. The patient was a married woman 40 years old. Along with evidence of disease along the urinary tract she had pronounced symptoms of pulmonary tuberculosis. On examination, subjective and objective, with uranalysis and morphologic examination of the sediment of urine, of anatomic and bacterial elements, I felt warranted in excluding gastric cancer. The tumefaction in the epigastrium was evidently an enlarged kidney displaced inward. My diagnosis was, tubercular pyelonephrosis consecutive to pulmonary infection. Although she was of a robust physique and a full habit, when seen by me, she died within two months.

An autopsy made by Dr. Hoffheimer verified the diagnosis.

Dr. Martin's patient was an elderly woman of 57 years, rather pale and emaciated. Six months previously she lost a daughter from pulmonary phthisis. In this instance the trouble was in the left side, where a hard tumefied mass gave rise to the suspicion of cancer of the cardiac end of the stomach.

This patient too had quite unequivocal signs of pulmonary tuberculosis. Her vesical symptoms, pyuria and other features led me to locate all her abdominal symptoms as exclusively of renal origin, pyelitis, pyelonephrosis, periodic occlusion of the ureter and intrinsic cystitis. The microscopic examination of three different days' urine decided beyond question the renal origin of suppuration. This patient went steadily down, dying six weeks later. An autopsy was refused.

The third of this group was a case of *traumatic pyelonephrosis.* The patient was 64 years old and mother of a physician. She had been injured over the right kidney some five years before. From some of the symptoms present it was at first supposed that the cause of all her trouble was Bright's disease; but latterly, as her distress became particularly accentuated in the right lumbo iliac region, it was beginning to be feared that she had a new growth.

She was a large, heavy person, and though organically sound except for this lesion, she was now quite disabled from anything like active exercise.

In her case, after a surface inspection, an examination of all the symptoms and organs, with repeated uranalyses on different days and different hours of the same day, indubitable evidence of pyelonephrosis involving the right kidney was present.

The most remarkable features in connection with this case were the intermittency of the pyuria and renal intumescence on the side involved. Sometimes the urine would be highly charged with pus, epithelia and the triple phosphates and clearly ammoniac alkali; while the following day, or even later in the same day, it would clear up, reduce in specific gravity and again become strongly acid.

Then for hours, though vesical tenesmus was most distressing, but little urine came, until another spell of renal colic set in, when another generous discharge of urine followed, with transient relief.

In this case a moderate quantity of albumin was always present.

In the first and second case of the last group the interesting question rises, as to whether the tubercular abscess of the kidney was consecutive to the pulmonary lesion, or the development of the latter was simultaneous with the former.

We can readily understand how tuberculous infection may travel up a mucous membrane, as from the bladder, but we had no evidence here of an ascending infection. Authors in pathology tell us that tubercular infection may spread along the lymph current or through the blood vessels; but the lymph current moves in a centripetal direction, and if the germs are swept along the arterial tide into the renal parenchyma, how is it that the bacillary mites pass by untouched the lymphoid structures for which they have a special affinity, and fall on an epithelial organ like the kidney?

It will require very much future research to clear up this side of the question in renal tuberculosis.

It might be inquired why an operation was not pressed for in these three cases? In the presence of progressive pulmonary tuberculosis it is unwarranted. Advanced age precluded it in the third case.

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DISCUSSION.

Dr. CHARLES P. NOBLE of Philadelphia—I would like to add my testimony to the value of direct examination as an aid to diagnosis in suppuration of the kidney. During the last two years I have seen four cases of this kind, two of which I operated on, and two were in the hands of other physicians. In these cases it was quite possible to make an absolute diagnosis by catheterizing the two ureters, finding the urine distinctly normal in one case. In one instance there was no urine secreted from one kidney; all of the urine came from the opposite kidney. The urine in one case from the affected side was full of pus. Both cases were operated on; the cause of suppuration was primary tuberculosis of the kidney. These patients made good recoveries and have done well since.

One of the most interesting cases from the standpoint of diagnosis was one which I saw recently. A diagnosis had been made of suppurating kidney, and an operation had been made to remove the kidney, with the result that the surgeon, a competent man, failed absolutely to find it and came to the conclusion that the diagnosis was erroneous, and that the woman had not a kidney on that side. I saw her later, and examination by the cystoscope and catheterization of the ureters showed that there was no question about the presence of the kidney on that side. Foul smelling urine was discharged from that side. There is no doubt whatever that the patient had a suppurating kidney, although a direct incision failed to find it. I would urge the necessity of not only making a microscopic examination of the urine, but of determining definitely, in women, where the urine comes from.

Dr. A. H. TUTTLE of Cambridge, Mass.—My experience with suppurating kidney is limited to one case in the past year. The case was one of long standing and a diagnosis was made simply from the situation of the tumor and by repeated emptying of the contents of the tumor into the bladder and the evacuation of large quantities of pus. The case was allowed to go without treatment for a year, when she came to my private hospital. At that time I began to catheterize the ureters, but there was a stricture of the ureter about one inch from the pelvis of the kidney which made it for a long time difficult to enter the kidney. After a while, I succeeded in entering the pelvis of the kidney, removing by aspiration about eight ounces of stinking pus. I left the catheter *in situ*, washing the kidney out daily with normal salt solution, and used about 2 per cent. solution of nitrate of silver. At the end of twenty one days the urine was fairly sweet; there was comparatively little sediment in it, and the catheter was removed with the hope, at that time, that the kidney would drain itself; but at the end of forty eight hours severe symptoms set in, the catheter was again introduced, pus withdrawn, and the kidney again cleaned. It became impossible to keep the catheter *in situ*, and it had to be removed again. A third attempt was made to pass the catheter into the ureter, but it was impossible to do so. At this stage something had to be done on account of the bad condition of the patient. It was impossible to remove the kidney, and so an opening was made in the side, through which the kidney was washed out. The case went on and made a slow and complete recovery. The patient still retains the tube in position and by means of an elongated rubber tube she can collect all the urine during the day without soiling the clothes, and by emptying the tube at intervals of an hour or two she gets along very comfortably. If I had known as much then as I do now I should have performed a surgical operation. Her urine has been examined from time to time, and there is a little pyelitis in the other kidney. The amount of urea excreted from the diseased kidney is about two grams.

Dr. MANLEY, closing the discussion—My paper includes the subject of catheterization of the ureters, but you must remember that while the catheter has a large range of application in the female, it has but a very limited one in the male, particularly where the patient happens to have stricture, prostatic hypertrophy, or where there is a stenotic condition of the urethral canal. You can understand a condition being present, which Dr. Noble mentioned, in which the ureter is closed by stricture, that the catheter is negative in its findings. There is more or less irritation of the bladder. The bladder in these cases is more or less inflamed and requires expert handling. The same objection applies to the cystoscope as to the urethral catheter in the male. If there be a tendency to oozing of blood, as there usually is in the turgescent stage of cystitis, the findings may be indefinite.

The object of my paper was to encourage a more systematic and methodical and practical study of the morphologic findings in the sediment of patients suffering from pyorrhea of the kidney. I feel confident that if we examine patients carefully and sytematically, in every instance we can determine whether the pus is cystic, ureteral or renal. I refer now to the male. You must understand that in the female a different course must be pursued in detecting the condition of the urine.

# THE TREATMENT OF PUERPERAL SEPSIS.

Presented to the Section of Obstetrics and Diseases of Women, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

BY E. E. MONTGOMERY, M.D.

PHILADELPHIA, PA.

Before the Obstetric Section at Atlanta, last year, I read a paper on the "Administration of Antistreptococcic Serum," based on my experience in one patient treated the February preceding. But little had been done at that time in the treatment and study of this practice. During the year very much has been added to the literature, although its value still remains *subjudice*. The importance of the subject can not be overestimated when we appreciate not only the serious mortality, but the influence upon the subsequent health of the individual, which must result from an attack of sepsis. I do not feel that the subject of the value of the serum therapy has as yet been sufficiently demonstrated to justify the physician in trusting to it alone; in other words, every means should be exercised which will increase the vitality of the patient, and thus enable us to secure immunity against further ravages of the disease. The value of the agent seems to have been sufficiently demonstrated, however, to justify us. not only in using it, but in asserting that the physician is derelict in a case of undoubted sepsis where he does not practice its use early in the treatment. While a number of cases have been reported during the year, in which the administration of the antitoxin has had marked effect even in the late stages of the disease, and where the condition of the patient seemed absolutely hopeless, yet it certainly is not wise that we should wait until such a time before its administration. In the consideration of its use, it is also equally important that we should be able to determine or have an idea that in the administration of the serum, it is being given in cases which are suffering from a specific condition. In other words, the antistreptococcic serum has not been found so effective or valuable in those cases in which there is mixed infection, particularly the bacilli coli communes, and we can readily appreciate that when a patient is suffering from a state of sapremia or putrid intoxication, and we administer a large dose of antistreptococcic serum, we are introducing an additional poison for which the disordered system must provide. Where it is possible, it would undoubtedly be better, if it can be accomplished quickly, that a bacteriologic investigation of the secretions should be made; but as this requires time, and in some cases valuable time, and under many circumstances, unless the practitioner has proper facilities for bacteriologic investigation it would be impossible, we are obliged to depend somewhat on our judgment and the physical signs, to determine the character of the condition. The occurrence of elevation of temperature following the delivery of the patient, or an abortion, should be considered as an urgent reason for careful examination to determine its cause. This may be produced by a disordered condition of the mammary gland, by the excitement from the development of milk secretion, or may result from retention of masses within the uterus, which become putrescent and cause what is known as putrid intoxication. When the examination of a patient determines the absence of anything within the uterus which should afford a cause of high temperature, associated with profuse discharge, or possibly in the beginning an arrest of lochia, and particularly where there is redness or swelling of the vagina, exfoliation of the mucous membrane, presence of diphtheritic exudation upon, or ulcerations of its surface, the condition should be recognized as sepsis and treated accordingly by the administration of the antistreptococcic serum, together with local cleanliness and constitutionally supporting measures. The dose of the serum will depend somewhat on the virulence of the condition; thus, if the temperature is high, symptoms marked, the dose should be as high as 25 or 30 cubic centimeters of Marmorek's serum. As this serum gives immunity only for a short period, the remedy should be used the following day or earlier, if the symptoms are virulent, and continued until the abnormal symptoms subside. The literature of the last year affords a large number of cases to which refences might be made in support of this plan of treatment, but I will content myself with calling your attention to the history of the patient which I reported in my former paper, and two other cases, one of which I saw in consultation, and the others occurred in the experience of one of the assistants in my clinic.

The case previously referred to developed an attack of sepsis the third day following her labor. When seen by me there was some induration in the broad ligament on the left side. The uterus was carefully curetted, removing nothing more than the debris and some small blood clots. It was irrigated, packed with iodoform gauze, an incision then made into Douglas's pouch, and some slight amount of plastic material removed by irrigation. A gauze drain was then introduced. The whole vagina was red, swollen, and covered with a glairy mucus, which was removed by scrubbing with creolin and soap mixture prior to the operative procedure. There was a slight subsidence in the temperature the following day, but on examination over the vulva, it was found that the redness of the vagina extended upon the vulvar surfaces, producing an erysipelatous blush. This condition extended until the entire portion of the body, with the exception of the forearms and hands, and the face, became covered. At the end of three weeks, the fourth week after confinement, this erysipelatous blush had thus extended, and the patient had had more or less continuous elevation of temperature; it was then 103.3 degrees, with indications of a second extension of the erysipelatous condition. The patient had been given large doses of strychnin, stimulants, nuclein and nutritious food administered. At this time hypodermic injection of 25 cubic centimeters of antistreptococcic serum prepared in Gibier's institution was introduced. This was repeated three times with a subsidence of temperature after each injection, and the subsequent convalescence of the patient was uninterrupted, the health becoming fully restored.

The next patient was seen in consultation with Dr. Donnel Hughes of this city, who gives the following: "I send you a short history of the case of Mrs. M. who had had a temperature ranging from 103 to 105 degrees for twelve days, when at your suggestion antistreptococcic serum was given. The first day she received an injection of 25 cubic centimeters. The temperature decreased from 105 to 102 degrees; next day 12.5 cubic centimeters, temperature fell to 101 degrees; third day 12.5 and it became 99 degrees; fourth day, 12.5 and temperature became normal; subsequent convalescence was uninterrupted. Patient made a complete recovery."

Dr. Irwin writes as follows: "On Dec. 15, 1896, I

was called to see a case in practice, with a midwife. The patient was 22 years of age, a primipara, who had been in labor sixteen hours; the membranes had ruptured several hours before my arrival. The head was wedged into the pelvic cavity in a left occipito-anterior position. Her pains were irregular, weak and ineffective. Ether was administered and the fetus delivered with forceps under strict antiseptic precautions. The pelvic floor sustained a deep laceration, but owing to the contused and bruised condition of the injured tissues, immediate repair was not considered advisable. Twenty-four hours later, the patient complained of rigors, followed by rapidly rising temperature, reaching 104 degrees F, with pulse 120. Her general condition daily grew worse, temperature fluctuating between 101 and 104.5 degrees, lochia very profuse, within a few days very offensive, no tympany, and slight pelvic tenderness. On the sixth day following the delivery she was seen with me by Dr. Fisher. Examination disclosed a closely adherent pseudodiphtheritic exudate covering the vaginal mucous membrane, including the cervix. The patient had general pelvic tenderness. The uterus, although large, was freely movable and the vaginal fornices and supravaginal structures pliable. The uterus was easily dilated. Its cavity measured about four and one-half inches in length, was free from clots and débris, and likewise lined with a continuation of the pseudomembrane. Under these circumstances we did not feel that curettement was indicated. The uterus was irrigated with a hot solution of bichlorid, 1 to 5000, followed by a light iodoform gauze pack of both uterus and vagina. The following twenty-four hours presented no favorable change, either locally or constitutionally. The gauze was removed, the parts irrigated with a 2 per cent. solution of creolin. The patient presented every appearance of profound septic absorption, temperature 104 degrees, pulse 140. The conditions were such as to justify us, even in the absence of a bacteriologic examination, in feeling that the infection was from streptococcus. At Dr. Fisher's suggestion, an injection of 5 cubic centimeters of Marmorek's antistreptococcic serum was used at 10 A.M., when at 2 P.M. the temperature had declined to 99 degrees, and nine hours later touched normal. The favorable condition continued until one o'clock the following day. It was six in the evening when the temperature reached 101 degrees, when a second injection of serum, the same quantity, was administered. The discharge from the vagina was still profuse, watery, very offensive, the pseudomembrane was evidently undergoing rapid disintegration and within eighteen hours it had wholly disappeared. Throughout the two succeeding days the temperature remained below 100 degrees; the patient's color, appetite and general condition were very much improved. An injection of the serum had been given each day. The fourth day the serum was omitted. The following morning the temperature of the patient again reached 104 degrees, with pulse 130, but declined to 99.5 degrees within four hours after the serum injection. Five cubic centimeters of the serum were given every alternate day for a week longer. The temperature during this time never exceeded 100 degrees, and finally became normal, which marked the beginning of a rapid convalescence. The patient, both before and during the period of the serum injection, was given stimulants and supporting measures in the form of nutritious and easily digested food, alcohol, strychnin and the antiseptic douches were administered daily. She made a perfect recovery.

While these three patients are not sufficient to enable us to assert that we have an infallible means of treatment of puerperal sepsis, yet the result in each one has been so marked after the use of the serum that they certainly justify its further consideration and employment. It is true these cases might all have recovered by other means, but I know of no plan of treatment which would have afforded the striking change in the progress of the cases as has been evident in all these cases after a practice of the serum therapy.

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## CLOSURE OF THE ABDOMINAL INCISION.

Presented to the Section on Obstetrics and Diseases of Women at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY PHILANDER A. HARRIS, M.D.

PATERSON, N. J.

A great deal has been said and written of late about the perfection of gynecologic operative technique least calculated to render necessary secondary operation. There is probably no condition following the gynecologic abdominal incision which calls more frequently for a secondary operation than that of hernia appearing at or in the line of the incision. It is extremely embarrassing to have our patients return exhibiting a hernia at one point or other of our incision, and still more humiliating to find that a patient goes elsewhere and receives the announcement. It is the purpose of this paper to deal briefly with what the writer esteems to be the more important points in the closure of the ordinary and median line of abdominal incision, between the umbilicus and the pubes.

Until the past few years, as we all well know, the general custom of through and through interrupted stitching prevailed everywhere. The frequency with which hernia was encountered, led to a great variety of methods of closing the wound. From that experience we have derived a technique which, although not perfect, is more calculated to obviate one of the serious drawbacks to the abdominal incision.

The gross appearance of the layers forming the abdominal wall at the line of this incision, will reveal, first, skin; then a layer of cellular tissue and fat; immediately beneath and closely adherent to this the strong fascia or conjoined tendon and aponeurosis of the oblique and transversalis muscles. This will vary in thickness from ordinary blotting paper to three or four thicknesses of the same. Then we observe the rectus muscle. Pushing this aside, or splitting it with our fingers, or the handle of a scalpel, we reach the peritoneum. It is reasonable to suppose that when we cut these structures we should on closing the wound bring the respective and corresponding parts together. Theoretically we would, therefore, first sew peritoneum to peritoneum, muscle to muscle, aponeurosis to aponeurosis, fat to fat, and skin to skin. Practically, I do not think that it is necessary nor wise to attempt as much as such theoretic considerations would indicate. I believe, however, that we should, as routine practice, sew first the peritoneum with continuous catgut, or other absorbable suture, using a modified Lembert stitch. Next, to sew with chromicized catgut, kangaroo tendon, or other absorbable suture, which will hold for at least one month, the opposing edges of the aponeurosis of the abdominal muscles. It has been the custom of

some operators to sew this aponeurosis with a running suture. If the stitches thus made should be exceedingly closely taken, and both ends of the thread well anchored the effect secured may be both immediately and remotely satisfactory. Instead of employing a continuous suture I employ the more commonly used interrupted stitch, placing the stitches not further than one-third of an inch apart. As to the approximation of the fatty tissue, I believe there is little excuse for sewing it, excepting where the layer of fat is unusually thick. I believe that this fatty tissue is sufficiently approximated with the addition of the skin suture. Except for esthetic reasons, I do not think that it matters very much what sort of stitch we employ for the skin. The cutaneous sewing which I have used for about three years, to the exclusion of almost all other forms, is the so-called subcutaneous suture, often referred to as the Halsted or Marcy stitch. I do not know which of these gentlemen was the first to use this particular stitch in surgery, but I do know that it effects a beautiful result. I have employed both catgut and silk for this subcutaneous suture, but prefer the latter, for it need not be afterward removed. The employment of silver wire, or silk, for the subcutaneous suture necessitates a good deal of pain oftentimes to effect its removal. To assure a patient who has experienced more or less anxiety and horror in connection with her operation, that there are no stitches to be removed during her convalescence, gains for us both her esteem and gratitude. The incision closed in this manner effects, I believe, the best possible results for both practical and esthetic reasons.

Regarding the employment of non-absorbable buried sutures, a number of good operators, realizing the importance of this system of tier suturing the abdominal incision, and having felt hitherto an unwillingness to trust to the sterilization of catgut, or fearing its absorption before its work is completed, have resorted to silk suturing of the peritoneum. For similar reasons they have also employed very extensively buried silver wire and silkworm gut suture in the severed aponeurosis. I employed for about two years, and until recently, silkworm gut for the aponeurosis, tying three knots and cutting the ends closely on the last knot with the scissors. A very small percentage of these cases suppurated and required a withdrawal of one or more of the sutures. In two cases I experienced a great deal of embarrassment in finding the offending ones. I believe that by discontinuing the employment of non-absorbable sutures in the aponeurosis and the use of kangaroo tendon or chromicized catgut the few embarrassments I have had in this relation will immediately lessen. My feelings, indeed, regarding the employment of non-absorbable sutures of any sort whatever, is so strong that I can hardly now realize that I shall ever again employ them. Possibly others have been more fortunate in this relation than myself.

Regarding the *strength* of the abdominal wall at point of incision, when united by the non-absorbent tier suture, I am convinced that it is far greater than that attained by the through and through, semi-through and through, or any other modification of sewing which I have practiced or studied. If these results have been attained by the non-absorbent suture in the aponeurosis, I am forced to believe that nearly, if not quite, as satisfactory work, may be accomplished with the slowly absorbable kangaroo tendon and possibly with the thoroughly chromicized catgut.

Regarding the danger of sepsis from the employment of kangaroo tendon or catgut, I may say that with the improved methods of sterilization we have very little to fear.

As to the particular structures which contribute to the tensile strength of the abdominal wall at this point for lateral strain, much might be said, but as to the tissue which furnishes the major tensile strength for such strains, I do not see how any one can attribute very much to any of the tissues excepting the aponeurotic terminations of the oblique and transversalis muscles. To such operators as have had no experience with suturing of this aponeurosis, I would say, that, excepting for theoretic and more or less uncertain clinical reasons, they should have little cause for contradicting these assertions. From an anatomic standpoint, they should concede the claim which is made, that this particular tissue furnishes the major part of all the tensile strength for lateral, and to a very considerable degree, vertical strains. Peritoneum holds little; the rectus muscle should hold only one way, namely, in vertical strain; cellular and fatty tissues hold very little; skin holds nothing; it only covers; so that, of these various structures, we must look chiefly to the aponeurosis of the abdominal muscles for tensile strength. Therefore, whenever we cut this aponeurosis or fascia, we should properly coapt its edges; if we do not bring them well together, we are allowing a less resistant structure to fill the interspace and afford an opening through which hernia may occur.

I am quite aware that I have offered you practically nothing which is new in this paper; these suggestions do not address themselves to many operators who are doing good tier work. They rather seek to crystallize the good work which many are doing. I have been prompted to write on the subject from the fact that many operators remain contented with the old-fashioned through and through suture which, I believe, has been very greatly improved upon.

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## THE CURE OF VESICO-VAGINAL FISTULA BY THE FREE DISSECTION OF THE BLADDER FROM ITS VAGINAL ATTACHMENTS AND CLOSURE WITH THE BURIED CONTINUOUS TENDON SUTURE.

Presented in the Section on Obstetrics and Diseases of Women, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY HENRY O. MARCY, A.M., M.D., LL.D.
BOSTON, MASS.

In 1887 my attention was first called to the ease with which the bladder wall will reunite after injury, under the most adverse circumstances, when the portion involved is free within the peritoneal cavity. The case upon which I operated at this time was that of a child eighteen months old, where an abscess in the vicinity of the appendix had resulted in a vesico-intestinal fistulous opening in the appendiceal region.

Laparotomy disclosed two fistulæ of the small intestine, complicated with an opening into the bladder to the right of the fundus. The intestines were freed from adhesions and drawn out of the wound. The

refreshed edges of the openings were closed by double lines of fine continuous tendon sutures, which in turn were intrafolded by a second layer of continuous tendon Lembert sutures. After the intestine had been returned, the bladder wall was freed from its adhesions, the opening into it refreshed and sutured in double lines of continuous tendon sutures, in precisely the same manner as I had closed the intestinal wounds.

The child made an easy and perfect recovery, with primary union of the openings, and is today a strong, vigorous girl. The age of the child rendered drainage of the bladder unsuccessful, but from the first the function of the organ seemed little impaired.

The case was instructive in many ways. Perhaps the most important lesson was the primary restoration of the bladder wall without the supposed necessary physiologic rest of the organ. The method of applying the first row of sutures in the approximation of the refreshed edges, held in even support by means of the continuous sutures, inverted the mucous membrane.

The insertion of the suture in both intestinal and bladder walls is in the following manner: The needle is a fine one, curved upon the flat, with eye near the point, and set in a firm handle, made to penetrate the coats of the bladder or the intestine also, but not through the mucous membrane. It emerges about one-quarter of an inch from the line of the opening, and is introduced upon the opposite side at a like distance. The needle is then unthreaded, rethreaded with the opposite end of the suture and withdrawn. This makes the needle a suture carrier like a shuttle, and holds in even coaptation the included structures in a double loop from side to side (shoemaker's stitch). One stitch follows another in an even continuous seam, until the opening is completely closed. By this side to side coaptation, the parts enclosed are held in juxtaposition the *breadth* of the enclosing loop, while the interrupted suture holds only the *width* of the suture material. The submucous penetration of the needle buries the suture in healthy vitalized structures and the line of stitches, taken a quarter of an inch away from the edges of the wound, inverts the mucous membrane into the bladder. The final fixation of the suture is by one knot, a manifest advantage over leaving as many knots as stitches, while the continuous suture permits of an even adjustment of the enclosing force. It must be remembered that no undue force is used in the tightening of the stitches, since readjustment, retention and rest with a minimum of devitalization, are the factors in the relation of the sutured parts as important as in the treatment of a fractured bone.

The exterior line of continuous Lembert sutures intrafolds the peritoneum so as to re-enforce and greatly strengthen the structures over the wound. When taken properly they are themselves buried without puckering of the peritoneum (parallel continuous suture).

From a variety of causes, quite a number of times within the last ten years, I have closed wounds in the bladder from within the peritoneal cavity as above outlined, and in every instance primary restoration has occurred. But in the entire series I have been enabled to drain the bladder for a number of days through the urethra.

During this period, in the larger number of cases of vesico-vaginal fistula, I have closed the wound through the vaginal opening by lines of buried tendon sutures, with varying results. Little by little I have found that both ease of operation and certitude of outcome seemed dependent on the freedom of dissection and the amount of tissue held in fixation. Especially has it appeared dependent, in considerable degree, on the extent of the dissection of the bladder from its vaginal attachments. Then the importance of the lesson taught me by the safe repair of the bladder wounds from within the abdominal cavity became apparent. From this standpoint I reviewed with renewed interest the entire history of surgical operations undertaken for the cure of vesico-vaginal fistula, from the days of Sims and Bozemann in this country and Jobert and Simon of Europe.

The various modifications in technic and detail of these great masters, save the introduction of antiseptic measures, has been that, little by little, without the recognition of the underlying anatomic reason, the successful cure of large vaginal fistulæ has been dependent on the greater freedom of dissection by which, the bladder has been separated from its vaginal attachments.

I can not myself question that the primary cause of failure, the surgical technic having been satisfactory, lies in the anatomic conditions, the importance of which, a study of the physiologic functions of these different organs makes easily apparent. The contraction of the circular fibers of the vaginal muscle tends constantly to pull upon the base of the bladder, and these muscular contractions are necessarily called into special activity following the irritation incident to the repair of a vesico-vaginal fistula. When both the bladder wall and the vaginal muscle are united by sutures, holding them in approximation, the contraction of the vaginal muscle not alone pulls upon the suture, causing it to cut through its own structure, but at the same time acts with equally destructive force upon the enclosed bladder wall. I believe that it is on this account that the great majority of failures to cure vesico-vaginal fistulæ ensue.

Reflection on the diverse physiologic relationship of the parts involved must lead to the conclusion that, at least, this is an hitherto overlooked important factor for surgical consideration, and I now invite the profession to give it due consideration in order to profit, as far as possible, from its better understanding, by the adaptation of improved surgical methods.

Every one who is familiar with anterior colporrhaphy for cystocele knows the comparative ease and safety with which a large portion of the vaginal muscle may be dissected from the dependent posterior bladder wall, and the almost sure complete primary union which ensues upon its fixation and closure.

It is safe, and not very difficult, having split the edges of a refreshed vesico-vaginal fistula, to separate widely the bladder from the vagina. When this has been effected, but not until the dissection is complete, the opening in the bladder wall is refreshed and closed by a double line of continuous sutures, as already described, carefully avoiding penetration of the mucous membrane, using for suture material a fine tendon.

By the use of a needle with the eye near the point, the suture is carried back and forth through the same stitch opening, precisely as the shoemaker sews leather.

The opening in the viscus is then closed by an even, uniform support, coaptating but not unduly compressing the enclosed structures A single knot fixes the

suture, a fact of considerable importance when the material used is to be left buried. The free dissection makes the union of the bladder wall a comparatively easy operation, and even when a large portion of the vaginal vault has been lost, there is little difficulty in effecting an easy uniform closure without tension of the bladder wall. As every operator knows, in large fistulæ, when the vaginal structures are enclosed with the bladder wall, this part of the operation is exceedingly difficult, and the tension upon the parts which follows is the usual cause of failure.

Therefore, again I emphasize the necessity of free dissection which, to the timid operator, at the outset seems at least to border on the verge of rashness.

The bladder wall having been closed, we have remaining an operation not unlike that ordinarily undertaken for the cure of cystocele, with the exception that oftentimes the remaining vaginal structures are unduly minimized. How these structures shall be closed, so far as the cure of the fistula is concerned, is comparatively of minor importance. It is wise, however, to restore them as nearly as possible to their primal condition. I think that this is best effected in a general way, a method which for many years I have continuously practiced, by the use of a single tendon suture applied with an Hagedorn needle, using a lacing stitch, the sutures being deeply imbedded from side to side. In this way the vaginal wall is coaptated in two or three layers and the mucous surfaces of the vagina are carefully approximated. This results in an entirely closed wound, the antero-posterior diameter of which has been considerably increased; in the first place, by the inversion of the mucous membrane of the bladder; in the second place, the approximation of the widely denuded structures upon the median line; and in the third place, by the inversion of the approximated vaginal surfaces of the wound.

Fistula in which the cervical portion of the uterus is involved comes easily under the same general plan of operative measures. The organ must be freely separated from its attachments.

Recto-vaginal fistulæ are operated upon by essentially the same method. From below through the perineum the vagina is freely separated from the bowel. The opening in each is closed precisely as the opening in the bladder wall; then the perineum is restored by layers of buried tendon sutures. I have long practiced this method almost without failure, a description of which in careful detail published years ago.

Suprapubic cystotomy in the male furnishes its corroborative testimony of importance in this direction, Here a large wound of the bladder is made with seeming impunity for a variety of reasons, the bladder wall independently closed, the superadjacent structures united in layers, the skin rejoined by a buried suture and the wound sealed without drainage. The suprapubic attachment of the bladder is by loose elastic structures which furnish the conditions favorable for easy retention at rest of the rejoined bladder wall. This is the factor usually wanting in vesico-vaginal fistula, and it is on this account that the wide dissection which I have before advocated is advised. I advocated this method of operation in a paper published in 1893.[1]

Dittel,[2] apparently without the recognition of the conditions which I have emphasized, in 1893 attempted a new operation for the closure of vesico-vaginal fistula, based probably on the experiences in suprapubic cystotomy. He opened the abdomen, freed the uterus and the vagina, sutured the fistula and then closed the peritoneal incision through the vesico-uterine space. This operation has its merit, in that it accomplishes the purpose above outlined. If for any other reason a laparotomy is necessary this method of closure of the vesico-vaginal fistula might be adopted, but hardly otherwise.

Mackenrodt of Berlin, in 1894, advocated a free dissection not unlike that which I have above described, after which he united the wound in the bladder with fine silkworm gut sutures. Then he closed the vaginal wound by drawing the body of the uterus forward so as to give the parts as far as possible a support from this organ.

Schauta[3] in adherent vesico-vaginal fistula advises a vertical incision, lateral to the left labium majus, dissecting down to the descending ramus of the pubes. Separation of the cicatricial tissue, walls of the vagina and fistula from the bowel by means of a periosteal elevation as far as the obturator foramen.

Ferguson[4] advocates the following method of closure: The fistulous opening being exposed, an incision is made through the mucosa of the vagina at the distance of a full eighth of an inch from the opening of the margin of the fistula. This incision is extended until it completely encircles the opening. The line of the incision is carefully deepened until the lining membrane of the bladder is reached, and great caution is exercised in retaining the integrity of that membrane. In this manner a circumfrontal flap, hinged by the mucosa of the bladder, is obtained. This flap is inverted into the bladder and held in position by a continuous catgut suture. There is no loss of tissue and a very broad raw surface is obtained for apposition.

Walcher advocated cutting away all tissue and, without making it quite apparent as to the purpose, he evidently frees the bladder freely from its vaginal attachments and unites the bladder wound with catgut sutures taken one-fourth of an inch from the edge of the fistula. After these have all been inserted they are tied. The bladder having been thus closed, the vaginal flaps are united by a line of silk sutures.

Howard A. Kelly, M.D. of Baltimore, has made a valuable contribution on this subject,[5] in which he reverses in large measure this very process, by dissecting the bladder, from behind forward, from its uterine attachments quite beneath the reflected peritoneal fold, and in this way is enabled to draw the posterior wall of the bladder downward by a layer of fine interrupted silkworm gut sutures, taken inferiorly through the bladder wall and its vaginal attachment. In the illustrated case, Dr. Kelly thought this measure advisable, because of the relation which the ureteral openings had to the bladder wound. The result seems to have justified the novel measure employed, and yet I am very sure the conditions will be rarely found which render this method of procedure advised. We are deeply indebted to Dr. Kelly for bringing to the attention of American surgeons and emphasizing the importance of the catheterization of the ureters prior to operation upon large vesico-vaginal fistulæ.

1 "The Reconstruction of the Pelvic Structures in Woman. The Advantage Derived from the Use of the Buried Tendon Suture." Reprint from the Transactions of the AMERICAN MEDICAL ASSOCIATION, Section of Obstetrics and Gynecology, 1892.

2 "Abdom. Blasenscheidenfistel Operation," Wien. Woch., 1893.

3 Monatsch. f. Geburtsh. u. Gynäk., Bd. 1, No. 6, 1895.

4 British Medical Journal, Feb. 24, 1896.

5 "The Treatment of Large Vesico-vaginal Fistulæ," Johns Hopkins Hospital Bulletin, February and March, 1896.

He claims for his method the advantage, in that the ureters are not involved, that he does not in any case include the uterus as a factor of repair, and that his method is easier to apply where the destruction of the tissue is so great as to include the upper part of the urethra. This I believe to be important, but it does not seem to me that the union of the posterior bladder wall with the anterior vaginal wall is ever to be advised when lateral approximation upon the median line can be effected.

The advantages I claim for my method are apparent. It is based: 1, on the anatomic and physiologic relationship of the approximated organs; 2, on the comparative ease of operation made possible by a free dissection; 3, the far greater probability of cure of large vesico-vaginal fistulæ, where a considerable portion of the vaginal tract has been lost; 4, the great advantage obtained from the lateral approximation of the structures on the median line; 5, by the use of aseptically buried tendon sutures the parts are held at rest in easy apposition and primary union follows, with no subsequent care of the wound and no removal of sutures.

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## THE NECESSITY OF FIXED CRITERIA IN THE STUDY OF THE THERAPEUTICS OF TUBERCULOSIS.

Presented to the Section on State Medicine at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

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NEW YORK.

There is nothing more trying in the search after truth in therapeutics than the absence of fixed criteria. Much as this is felt in every department of medicine, in the field of tuberculosis it becomes fairly disheartening. The therapeutics of tuberculosis has been so widely extended with really so few points at which it has been advanced, that we need above all things at the present time to study it in general, apart from its application to single cases. In other departments of human knowledge there are works that take up a subject itself apart from its relations. There is a grammar of grammars. There is a chemic philosophy. There are books on pure mathematics. Some one is needed who, abstracting himself from the advocacy of any particular method, will lay down a standard to which all methods can be brought for measurement. It is not intended at the present time to attempt a definite plan, but rather to suggest its necessity so that various men may take it up and finally the desired result may be accomplished. This advance would not be unparalleled even in the history of tuberculosis. In the field of diagnosis we have reached certain ground by our knowledge of the bacillus discovered by Koch.

There is need in the first place of a definite plan of classification of cases. The old division into stages has proved unsatisfactory. The problem is a more complicated one than that. The classification must include more elements, such as heredity, race, temperament, condition of life, mode of infection, exact location and extent of the lesion. Then there might be included various personal equations, such as may be eventually evolved from the physiologic laboratory. By giving its true value to each element an equation might be reached that would express the therapeutic weight of the result should improvement follow in any particular case.

The advance in knowledge due to the discovery of the tubercle bacillus has blinded us to the fact that there are still a great many things that we do not know. It is evident that the process of cure of tuberculosis is different from that of many other infectious diseases, such as diphtheria. In other infectious diseases the bacilli seem to perish, each on account of the product of their own living, while the tubercle bacillus seems to prepare the soil for the future growth of its kind. Again, the large number of people who are much of the time immune to the infection of tuberculosis, and yet who may any moment give a harbor to this germ, makes it evident that there is some peculiar and probably physiologic barrier that has given way at the critical moment. If this condition, which for the want of better knowledge, we call immunity, could be better understood in the case of tuberculosis, as its parallel condition has been worked out in diphtheria and the other diseases for which we can vaccinate, the problem of the prevention and treatment of tuberculosis would be a much simpler one. It would seem that a new principle must be discovered somewhat different from the principle upon which antitoxin is able to work, and it is just possible that some undiscovered chemic germicide will be the agent. Looking over the community at large if we had means of analysis, we would find that there are people suffering from tuberculosis, susceptible people and immune people. When we are called upon to treat a case of beginning consumption we cast about for means of restoring that person to his previous existing state of immunity. This we do by more or less general constitutional measures. It is not altogether a common, and yet a frequent observation, that among the poorly cared for classes there are cases in which there has been a fairly large amount of destruction of lung tissue who recover spontaneously even under the most adverse conditions. If we could investigate these cases with their surroundings it might be possible to discover some uniform condition as a basis for study, just as the immunity from smallpox, of those who cared for cows who had a certain disease, led Jenner to the investigation which enabled him to save as many lives as would be saved by a cure for tuberculosis.

In order to bring in review the different plans of treatment of tuberculosis as carried out in various parts of the world we should have a court before which the claims of each might be reviewed. It can truly be said that there is no great superiority of any particular method. We may look with hope in the direction taken by laboratory and physiologic experiments that have led to results in the case of other diseases. On the other hand, impartial clinical observation of the natural course of untreated cases, or of cases in which it has seemed certain that the drugs used were without effect, often leads to a state of mind which accepts with scepticism the results of any specific plan of treatment.

In New York City the climate is notoriously bad for lung diseases, and yet now and then a case with advanced lesions, while under the writer's observation, has shown great improvement and come to a standstill when practically no medicine was used at all, the improvement being apparently due solely to a more hygienic mode of life, or perhaps the leaving off of the excessive use of alcohol. It is needless to remark

that other cases have resisted every known mode of treatment, and have gone steadily from bad to worse. The crops of new treatments for consumption are about as regular as the recurrence of the months. Of these treatments one or two attain prominence and notoriety every year. The most salient fact seems to be the absolute unreliability of the testimony of patients themselves, and the impossibility for any observer to judge impartially a plan of treatment that has been the birth of his own brain. In a quiet and unbiased discussion in the Medical Section of the New York Academy of Medicine, the conclusion seemed to be that at the present time we must depend still upon the adaptation of various modes of improving the systemic forces. It would be well if there were some constituted authority in the possession of sufficient clinical material to make impartial comparisons of methods as they are brought to the notice of the profession. It is unscientific, inhuman and altogether disgraceful to the profession of medicine that every year some treatment should be forced upon the world through mere notoriety. We have recently had an instance in New York City of a so-called specific for consumption so successfully thrust upon the public of the United States, that many physicians themselves, throughout the country, have been led to look upon it as something worthy of their adoption. Strangely enough this could take place while the remedy and its author were repudiated by the profession in New York City. It should be, and probably is, a fairly simple matter for those in charge of large consumptive colonies to determine almost immediately the falsity of the claims of any such remedy as a specific. The greater the claims the easier it should be to disprove them. Some one wishing to benefit the race for all time should endow a large colony for consumptives in some salubrious climate where parallel tests could be carried on with a number of patients sufficient to eliminate the large personal element, and to bring into use the mathematic theory of chances. It is a curious fact that where money interests are involved the application of mathematics to determine the death rate under various conditions has been carried to extreme perfection, but when life without money is involved it is still very inexactly applied. The life insurance companies only insure healthy persons, and up to the present time have not attempted to estimate the chances of diseased persons under various conditions. Should it become the custom to insure the lives of consumptives, it would not be long before the same sort of discrimination would be brought to bear to determine the validity of the claims of the many treatments that are in use in various parts of the world.

We wish to make a plea for the establishment or the adaptation of some institution as a court to which each discoverer may present his cure for impartial judgement. Great is the credit of men who devote their fortunes to the cure of the sick of each generation, but much greater honor will be due to those who help, like Jenner and Koch, to discover principles that will influence for good the health of the race throughout all coming generations.

30 West Thirty-sixth Street.

**Gloves in Surgical Operations.**—Wölfler uses the ordinary leather military glove, keeping it in 3 per cent. carbolized glycerin. He advises them for all septic and aseptic operations and the examination of the rectum, vagina and mouth.—*Cbl. f. Chir.*, October 9.

## HEATING APPARATUS AND HYGIENE.

BY THOMAS J. JACKSON, A.M., M.D.
CLINICAL INSTRUCTOR IN NERVOUS DISEASES, COLLEGE OF PHYSICIANS AND SURGEONS.
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In the interest of hygiene and good sanitation it would seem that something ought to be said concerning the increasingly prevalent use of gas and oil heaters. Particularly so, since, as ordinarily used, these heaters are not provided with a flue or any means of escape for the noxious and toxic gases they emit. They are brought into requisition mostly during that cheerless period of spring before winter has fairly left us and before warm weather is a settled certainty. So often in our capricious climate an almost torrid March or April is followed by a frigid May or June. Then it is that most families domiciled in our modern houses with their steam radiators and hot air arrangements, after the "furnace has gone out for the spring," suffer a positive hardship. How comfortable would then be the old wood or coal stove which, although possibly not so elegant, was a more efficient ventilator.

It is during this cold damp weather, in the absence of adequate heating facilities, that we have such a crop of sore throats, coughs, colds and bronchitis. The physician called to the modern house looks in vain for the means to provide his ideal warm moist atmosphere that is such a desideratum in the satisfactory management of the maladies named. He goes into the sick-room where is lying a child sick with acute bronchitis. He advises the anxious mother that some arrangement for heating the apartment must be made. She is likely to say "Oh yes, doctor, we will have our little gas stove set up at once. That is just the thing. That is what we always use to take off the chill on these cold damp days."

These heaters as used are a menace to the health of those who are well, to say nothing of their use to warm the sick-room. Especially will they be harmful in the apartments of those ill of diseases of the respiratory tract. But they are widely employed, not only by the laity but also by physicians. Their necessarily deleterious effects will readily appear to any one who will apply a few of the principles of elementary chemistry.

Let us consider the chemistry involved. Coal gas, after it is rid of its impurities, has for its approximate composition, hydrogen, carbon monoxid, methane and several hydrocarbons having the general formula $C_nH_{2n}$. When these products are burned at the orifices of the stove, it is plain that their oxidation will produce an immense volume of carbon dioxid to be thrown into the air. The quantity of this carbon dioxid will be in direct proportion to the amount of combustion, that is to the size of the fire and the heat desired. On the other hand, this combustion, this oxidation, will require a volume of atmospheric oxygen in direct proportion to the heat produced.

Now, most educated laymen know all these things, and of course all physicians do. It is not that we lack scientific knowledge, but that we do not often enough apply our science to our common every-day needs and to the solution of every-day problems.

The danger accruing from these heaters is not necessarily in their consumption of oxygen and vitiation of the air with carbon dioxid, but in the fact that, as ordinarily used, they are provided with no arrangement for the elimination of noxious gases. With the

ordinary stove, there is constantly passing up the chimney a column of heated gas that leaves a partial vacuum behind it. This brings in as constantly from without a volume of atmospheric oxygen to take its place. But in the case of the heater, with no egress of carbon dioxid there is no room provided for ingress of fresh oxygen, hence no ventilation. Applying the two-volume law, it is evident that every double volume of oxygen gas will produce, after combustion of the carbon, two volumes of carbon dioxid. At a considerable rate of combustion, with no provision for exit and supply of oxygen, it will not require a very long time to transform all the oxygen available for breathing into the poisonous carbon dioxid. It may be urged that there is ingress and egress by doors and windows, but it is readily seen that this is only accidental and neither systematic nor adequate ventilation. If doors and windows were the only ventilation for a gas heater they would have to be so wide open that the low temperature of the large quantity of air necessary to provide ventilation proportionate to the carbon dioxid produced, would easily neutralize all the heat produced by the stove.

The gas fireplace usually has an ample flue and is not objectionable; nor is the gas cooking range, when fitted with a capacious hood for the conduction of fumes.

It may be said that if gas stoves are noxious, then gas jets for lighting are noxious also; and this is true. The damage is the same in kind and differs only in degree. But practically ordinary ventilation is sufficient to provide for the comparatively small amount of noxious gas produced.

What has been said of gas heaters applies equally to oil heaters. The only difference is that in this case, instead of the gaseous the liquid hydrocarbons are used, these being volatilized by heat after being carried up the wick by capillarity. Similarly what was said of gas jets as to proportionate damage, applies to oil lamps for lighting. In passing, here is an argument for the electric light.

The principles above stated apply also as against gasolin cooking stoves, but in extenuation it may be said that gasolin stoves are used in summer as a rule, when it is possible and usual, on account of the heat of the season, to have doors and windows wide open, so that ample interchange of air is secured.

The needs of the human body in oxygen are identical with those of the stove, and its product of carbon dioxid is chemically the same. Hence, the latter may rob and poison the former. In a tightly closed apartment with a gas stove without flue burning, the blood might be so surcharged with carbon dioxid and so deprived of oxygen that cyanosis might be produced, and even asphyxiation.

A few simple experiments will demonstrate the vitiation of the atmosphere by these heaters. The flame of a lamp or candle carried into a closed room where such a heater is burning will lose its brilliancy, and the flame will dwindle at a rate in keeping with the loss of oxygen and increase of carbon dioxid. If in such a room lime-water is exposed in shallow dishes, a thick film of calcium carbonate will be rapidly formed on the surface of the liquid.

521 E. Thirty-ninth Street.

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WRITE TO US for a copy of Department of Public Health Bill.

## SURGERY ONE HUNDRED YEARS AGO.

AN HISTORICAL STUDY

BY DR. GEORGE FISCHER.

DEDICATED TO THE GERMAN SURGICAL ASSOCIATION.

TRANSLATED FOR THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION BY CARL H. VON KLEIN, A.M., M.D.

XVI.—DISEASES OF THE BLOOD VESSELS, NERVES AND SKIN. NEOPLASMS.

(*Continued from page 1016.*)

If from the teachings concerning carcinoma we select certain principles which are adopted to show a comparison of that time with today, we must confess that in this matter the surgery of one hundred years ago corresponds to our latest scientific conclusions. Between the two lie the erroneous teachings of the humoral pathologic school and the infinite and tedious labors of the microscopists. *Those fundamental principles, in which we agree with our forefathers are the following: Cancer is in the beginning a purely local affection; it must therefore be entirely and perfectly removed as early as possible. It is curable by surgery, and extirpation constitutes the only prospect of success; medicines are of no avail.*

The bulk of what was at that time written on carcinoma pertained to *breast cancer*, and it was here that those general principles found special application. Heister observed it most frequently in unmarried women between the ages of 40 and 50, as soon as menstruation became irregular. Richter considered it difficult to distinguish between harmless tumors and breast cancer and held this to be the reason that some surgeons had operated on this cancer with frequent success, while others at best rarely succeeded; he himself confessed that he had once mistaken a milk tumor for scirrhus. In respect to operation he distingushed three cases: 1. The painless scirrhus with the most favorable prognosis, absolutely demanded an operation. 2. In case of concealed cancer with unfavorable prognosis the operation is justified as the only help. 3. In case of open carcinoma, which allows almost no hope, no operation should be made. He nevertheless left a means of retreat and stated that case No. 1 was often unsuccessful, while on the other hand, 2 and 3 were occasionally operated on with success, and so the operation was justified in the two latter cases if it was permitted, withal. The result also depended on the more or less aggravated nature of the cancer, according to whether it was inherited or was of quick and spontaneous origin, or whether it had been very painful from the beginning, etc., in which case the prognosis became more unfavorable. In the case of scirrhous axillary glands, Heister attributed but little success to the operation, although he knew of isolated cases of cure by extirpation of the glands. In the operation, as stated, everything depended on completely eradicating the cancer and leaving behind no tainted particle. As contraindications, Richter noted the transition of the carcinoma to the intercostal muscles, ribs and pleura, also pangs in the breast and short breath, which indicated scirrhus in the lungs. Camper asserted that he had found that the change in the axillary glands was not the criterion of a later relapse, but that the safest guide was a piercing pain between the second and third ribs, where the art. mamm. int. passed outward; under these conditions he never operated. C. C. von Siebold would not operate in case of an immovable tumor

grown fast to the pector. maj., and Pouteau would not operate for breast cancer when no external causes existed, because he then considered that an affection of the uterus was the cause. Schmucker considered the reddening of the eyes with inflammation of the Meibomian glands as a safe indication that the cancer was no longer local, an assertion which Michaelis even at that time contested. Richter accomplished the extirpation with two crescent-shaped incisions which ran obliquely from the shoulder toward the under part of the breast-bone (Heister operated with a straight or crucial incision, B. Bell with a simple lateral incision, and Schmucker by the use of an awl-shaped instrument), and in case of a large tumor, even if a part of the gland appeared healthy, Richter always cut away the whole mamma, as did Bell in all cases. The skin was spared as much as possible and the hemorrhage was stopped, not too quickly but thoroughly, by means of ligature. Compression appeared to him not permissible, which by means of a sponge Theden and Schmucker declared to be sufficient. When the patient was not too weak Heister let a few ounces of blood flow in order to prevent inflammation and wound fever, and then for stopping the hemorrhage used a lint bandage with alcohol and puffball. He mentioned the ligature indeed, but did not recommend it, and censured Petit who used nothing to stop hemorrhage, but who immediately sewed up the edges of the incison. The closing of the wound was accomplished either with adhesive plaster (Richter) or by suture (Bell). They laid great stress on a quick healing by prima intentio, as it was considered the safest preventive of relapse. Indeed, Fearon extolled it so very much that he ascribed Monro's unsuccessful operations entirely to the fact that he filled the wounds with dossils and allowed them to suppurate. They extirpated the swollen axillary glands also, as well as the rest of the diseased mamma (J. L. Petit first). If a vessel passed through the axillary gland, a ligature was applied to it before they cut the gland out. J. L. Petit presented the best method for its eradication; he pressed the axillary gland out with two fingers, made an incision and peeled it out with the fingers. Gooch at one time took out nineteen scirrhous axillary glands. Tainted spots which arose in the wound during its healing were either well cauterized with a hot iron (Richter) or extirpated anew (J. Vogel and Sabatier), and to prevent their recurrence milk diet, water cure and artificial sores were recommended. If an operation was not possible, palliative treatment was the only resort, in which Richter had the sore bandaged with tar in order to diminish the pain and smell.

*Cancer of the lips* was frequently confounded with other sores and was considered less virulent than breast cancer. The external application of arsenic was heralded as the preferred remedy and, in general, corrosives. But the latter promised good results only when the ulcer could be entirely eradicated by one application. Richter and Bell preferred the knife or the scissors. Cancers which involved the whole substance of the lips, the former extirpated with a V-shaped incision, and if they affected only the external surface he severed it close to the skin. The Englishman laid great stress on always arranging the incisions so that it would be possible to close them by suture. Pott discovered a particular kind of a cancer of the scrotum and named it *chimney-sweeps' cancer*, because it was chiefly contracted by chimney-sweeps in consequence of the soot which accumulated in the crevices of the scrotum. It attacked first the under part, soon ate through the skin, rendered the testicles scirrhous and extended itself along the seminal duct into the abdomen. The only remedy consisted in removing the diseased part of the scrotum as quickly as possible, and if the testicles had been attacked even castration was no longer of any avail.

*Encysted tumors*, which Schmucker believed had become much more frequent since the time when ladies used so many hairpins in their head-dress and plastered the hair with powder and pomade, varied according to their contents; if fluid they were called meliceris, if pulpy atheromas, and if like fat steatomas. They were seldom successfully dispersed; the most frequent remedy was the operation in which the sac was not opened and was removed without leaving behind any of it. Bell attached no value to leaving it unopened and found it easier to open the sac, empty it and then cut it out. If the position of the tumor prevented a perfect extirpation the emptied cyst was left to suppurate. If the contents of the cyst were fluid, injections of irritating liquids or the use of a seton proved successful. They considered *exostes* as small sacs hanging to the sheaths of the tendons and containing matter like the white of an egg. They sought to disperse them into new places by friction or electricity, or to burst them with a blow from a hammer. As previously mentioned, Richter made incision or excision subcutaneously in order to avoid, as far as possible, the admittance of air. On the other hand, Bell did not hesitate in case of large tumors to remove the sac, intact and unopened, from the sheath of the tendon without further precautions. He described also the intumescence of the mucous sac and recommended a dispersion by means of friction, blisters or ruption and the keeping open of the swelling, also the drawing of a string through it. J. L. Petit gave especial attention to *telangectasis*, which had already been suggested to Heister by Dionis, and which J. Bell first accurately described. Both surgeons insisted on complete eradication with the knife. Z. Vogel accomplished many cures by cauterization. In a piece of linen cloth spread with plaster, a hole the size of the mother mark was cut and this was pasted on; then a dough made of equal parts of finely shaved Venetian soap and finely ground unslacked lime was applied to the sore through the hole, and so after twelve hours a scab was formed. The larger spots required repeated cauterizations.

### XVII.—DISEASES OF THE HEAD AND FACE.

Skull fractures, trephining; Face wounds, artificial nose; Nasal polypus; Hare-lip; Cleft palate; Diseases of the teeth; Opening of the Antrum of Highmore and frontal cavity; Diseases of the tongue; (Ranula); Tonsils; Parotid gland; Operations on the ear.

To the favorite cases of surgeons belonged the *fractures of the skull*. The chief centers of interest were the indications for trepanning, of which three periods were distinguished in the second half of the eighteenth century. The first period commenced in England with Pott, who always trepanned (1760); the second, in Germany with Schmucker, who restricted trepanning (1774), and the third in France with Desault, who abandoned it altogether (1791).

Pott was impressed by the times. Undoubtedly he knew that centuries before, Lanfranchi of Paris († 1300), very seldom alluded to trepanning and considered an application of rose oil, properly bandaged,

sufficient; Lanfranchi, however, in spite of his fame, was a very timid operator, so much so that he hesitated to draw molar teeth, and in cases of skull fractures invoked the help of the saints. On all sides Pott heard of the praises of trepanning, especially through the "Memoirs" of the Académie de chirurgie. The great J. L. Petit trephined every fracture, although not on account of the size of the fracture, but in order to relieve the pressure, to extract splinters, to remove the collected fluid, and prevent inflammation and suppuration. Of course, he knew of fractures which had been cured without trephining, but considered them exceptions. Useless, even harmful, he thought it in a case of concussion of the brain; but in extravasations, and the paralysis caused thereby, and in suppuration in the brain, although there might be danger of not locating the pus, he considered trepanning a necessity. He had already noted that in compression, insensibility sets in gradually, a fact to which Verduc and Boerhaave were the first to call attention, but in concussion suddenly. The same opinion was entertained by Quesnay. Although he also saw impressions cured without an operation, the cry still remained: always trephine, even if the bone is not broken, as soon as the injuries sustained by the head are serious. He described the fracture of the inner table, when the outer layer had remained entire, and also trephined in case of caries. Similar principles were taught by the military physician Ravaton. Proceeding from the idea that the symptoms and not the fracture indicated trepanning, the French operated in the event of the least injuries; LaMotte with the smallest fissures; Garengeot in case of counterstroke; Le Dran, mere concussions, when the skull was not injured. Most of the surgeons, especially Louis, were not in favor of trepanning the sutures nor the occipital bone on account of the great sinus. This prejudice Warner tried to dispel. Lassus successfully trephined the sagittal suture, Acrel the lambdoidal suture and the frontal bone, and Gooch the occipital bone. In Germany trephining was also the rage. Heister trephined in case of fractures, fissures, internal blood effusions when the skull remained entire, and in extracting splinters, portions of the skull that had been pressed in he raised by means of elevators. Perhaps warned by an inner voice, he gave the uncertain advice neither to undertake trephining without compulsion, nor to defer it when indicated by the symptoms. Altogether he expressed himself very reluctantly and declared that most of the operations proved fatal. It was very general to resort to repeated cupping in the treatment of the slightest cranial injuries, which method was most extensively employed by J. L. Petit; besides this, purgatives were frequently given, and poultices of warm wine applied so as to prevent the cold air from causing inflammation of the brain.

Then Pott came forward. Above all else, he designated all the dangers to which the dura mater is subjected in cranial lesions. The majority of these originate through the disturbance or the cessation of the communication that takes place between the pericranium and the dura mater by means of the many blood vessels. If a blow ruptured these vessels which connected the dura with the skull an effusion of blood was the consequence; but if they were only crushed, inflammation or suppuration would result, or the membranous covering and the dura mater be loosened from the bony case. Pott considered the loosening of the pericranium as a sign of the simultaneous separation of the dura mater. While signs of a depression were indicated by the escape of the blood soon after an injury, symptoms of inflammation and suppuration of the dura were noticeable a few days later. The differential diagnosis between concussion of the brain and extravasation Pott thought very difficult and the theory of distinction advanced by J. L. Petit and Le Dran regarding the setting in of unconsciousness, sooner or later, too uncertain. At all events a surgeon ought to prevent inflammation and suppuration; or if this was no longer possible, procure a free passage to drain the pus. The former was accomplished by strong bleeding, the latter by trephining. Pott trephined even the simplest fractures of the skull at once; only special circumstances influenced him to defer an operation; not, however, on account of the fracture, which necessitated no operative interference and could not be cured thereby, but on account of the blood effusion and its evil effects. The inflammation of the dura mater appeared to him the most serious one. It covered the ulcer and hindered the spontaneous bursting of the same; so this circumstance alone justifies an early trephining of every simple fracture of the skull. Besides, out of every ten fractures seven are accompanied by urgent symptoms, so that in most cases immediate operative interference is called for. Although Pott had to admit having unnecessarily trephined when unsuccessful, he contended that the few cases did not overthrow the rule: "Better trephine two patients unnecessarily than let eight die for want of it." Nor did he deem it so dangerous, although the uncovering of the dura mater was not an indifferent matter to him; yet the danger arising therefrom did not compare with that caused by neglecting to trephine. If the escaped blood gathered under the dura mater, he opened the same by a cross incision. When no blood was found underneath the fracture, trephining was again resorted to; the sutures and upper portion of temporal bone only when necessary, but then it must be boldly opened. Depressions demanded the same treatment as the fractures. If the injury is accompanied by depressions, an operation is performed to raise or remove the depressed fragments, and on the uncovered dura mater is lightly placed some soft dry charpie held in position by a nightcap or pocket handkerchief instead of the usual uncomfortable head bandages. The audacity with which Pott trephined day after day is astonishing and if he did not detect the pus, the drainage of which he considered the only remedial agent for the sustenance of life, he followed up the first operation with a second and third. That his trephining operations met with more success than attended those in the hospitals now-a-days was probably due to the less frequent occurrence of pyemia at that time, and if the question is put why Pott succeeded so much better than Desault, we must consider that he employed immediate trephining with every fracture before inflammation set in.

Naturally, the example of trephining set by so prominent a surgeon was followed everywhere. How could an unknown English navy surgeon, John Atkins, gain the upper hand with his little article against trephining in 1742? He received no recognition whatsoever. Also in Germany trephining continued to flourish. In 1763, Simon Pallas feared no suture, no sinus, no fontanelle; with depressions he tried his

luck by using strong adhesive plasters and cupping glasses, trephined also in case of caries of the inner table and in case of headaches which had not yielded to other remedies. Similar extensive views were entertained by Bilguer (1763–71). Among other things he said: "Mr. Martini tried to restrict trephining, as I tried to do likewise with amputating; and what physician and surgeon as well as every other human being does not exclaim with me: Would to God that we might be spared, if not entirely, at least for the greater part, trephining and amputating and all other surgical operations! However, since greatly improved in knowledge by my varied experiences, I believe that my reasons are well grounded for declaring trephining to be very often necessary and useful, on the other hand, amputating is very often unnecessary and useless. Therefore I have not been able to speak of them in any other way than I have done." Bilguer trephined fractures as well as depressions, the frontal bone as well as the occipital, and cut through the hard membranous covering of the brain, when he suspected extravasations underneath it. Having cured two cases without trephining, he believed that with the same the wounds would not have been more dangerous. He trephined often and betimes, but acknowledged that the operation was not always necessary when the fracture was large and the fragments of bone very loose. It is worthy of note, that not even the simplest injuries were treated lightly by him. He laid great stress upon pure air, therefore ordered all patients suffering from injuries of the head to be protected from the evils of hospital fevers and foul air, by separating them from the other wounded and sick, as was done in most of the military hospitals. Theden considered the trepan an indispensable instrument; without it, death was certain. What was accomplished in trephining by the two military physicians during the Seven Years' War can easily be imagined if we repeat Dr. Baldinger's remark: "Every cranial injury, be it a deep wound, a contusion, cut, blow or a wound caused by a grazing bullet, absolutely necessitates an operative interference." He upholds Bilguer and Theden in their reputation of having generally introduced this less cruel, but ever harmless and so often life-saving, operation. The end of Pott's period of universal trephining came with J. Hill, whose ideas, to a certain extent, clashed with those of his countryman. Slight depressions he did not raise, because he considered forcible elevation very dangerous. Bromfield opposed the prevailing idea that concussion of the brain required great draining and recommended opium in the form of Dover's powders instead of it.

The second period is represented by Schmucker, to whose immortal merit be it said that he introduced cold compresses for injuries of the head and restricted trephining. What an interest our countrymen took in this class of injuries by erecting a special field hospital for those who received injuries to the head during the siege of Schweidnitz in 1762, has been mentioned heretofore. In the beginning of the Seven Years' War, he trephined as often as any one else, and even on one occasion for headache which had set in after a simple cranial wound, the bone having remained unscathed. But he knew that the indications for trephining were still very uncertain, and were mostly made in the study room where one writer copied from the other. His first twelve cranial injuries were comparatively mild cases; either a simple lesion of the soft parts caused by a shot, or a slight exposure of the bones; there were no depressions or fractures. The concussions were not violent, the patients would have been able to go about in a few days and attend to business. Schmucker trephined them and saw all of them die. "This moved my whole soul, and every physician who has humane feelings would have been affected as I was under the circumstances, when in spite of all pains and care he could not save the patient, but must be a mere spectator to the rage of the disease. . . . I discovered a new remedy. . . . This discovery and its successful results following, gave me great joy and pleasure." His physiologic observations which led to his applying cold water and the manner in which he used it have been mentioned in the 14th chapter. When a patient with an injured head came to the field hospital, the wound was enlarged and dressed; then he was bled to the extent of sixteen ounces, which operation was repeated several times if necessary. The head was now enveloped in a thick flannel steeped in his "fomentation" and lightly wrung out; this process was renewed every hour. Internally, saltpeter, neutral salts and purgatives were given, also enemas. With these remedial agents, Schmucker saw exposure of the bone, impressions, depressions, and even fractures heal. Yet in connection with the last kind of injury, he employed trephining whenever necessary, occasionally from two to five times and in a case of caries as often as eleven times in four weeks. But in this instance, the patient was very little discommoded and could seldom be induced to lie down immediately after an operation, but instead went to market an hour afterward to make his purchases; he died a week after the eleventh operation. A patient had suffered with an intense headache in the same spot for about a year; so Schmucker and Meckel suspected a caries of the inner table or an ulcer in the brain. They trephined him, but found the bone entire. "We looked at each other in blank astonishment." Without having a knowledge of Schmucker's cold compresses, a second blow was dealt Potts's teachings by William Dease of London in his "Observations on the Wounds of the Head," 1776. First of all he proved that the inflammation and suppuration of the dura mater was not the most frequent cause of the serious cases. This suppuration was not so much to be feared and could be removed by trephining; he also did not believe that on account of the blood vessels connecting the dura mater and pericranium, the injury caused a suppuration of the former. He laid the cause of death to the inflammation and suppuration of the pia mater and the brain itself. But as the external symptoms are not manifested until pus has formed, bleeding, Dover's powders and trephining are of no consequence. Since by means of the last agent the pus could not be drained off, because it was not in clots, but mostly spread over a large portion of the brain, hence in most cases an operation was of no use. Methods of treating cranial injuries were thus improved by Schmucker and Dease, who had discovered a new method of determining the seat and cause of fatal cases. In 1778 Metzger of Königsberg opposed Pott and did not believe in trephining every fracture of the skull. Very decidedly did Richter confront his teacher, defended the teachings of Dease and adopted Schmucker's methods. From his ever-regulating hand the German surgeons received a new teaching with great restriction of trephining. Not a simple fracture of the skull, not a concussion of the brain, not the inflammation of the

two membranes, not the suppuration of the pia mater require trephining; but the suppuration of the dura. Richter advised every surgeon to use cold poultices from the very beginning in minor cases of cranial injuries, in order to avoid inflammation. Extravasations usually had to be trephined; however, if there be no imminent danger, dispersion, which had already been carefully observed, should be tried. At that time this method was a great improvement, for it was this very circumstance of not knowing how to get rid of the wound secretions, there being no drainage, that made trephining indispensable. Richter absolutely rejected Pott's idea to immediately trephine all fractures and compressions and at all events waited until there were signs of suppuration and extravasation. By means of the operation inflammation could not be prevented; on the contrary it was promoted and accelerated by the irritation which it caused. If, however, the seat of the extravasation was suspected, which was often a very difficult matter, trephining should not be deferred long; however, it should not be done at random. Although it was of consequence only in the suppuration of the dura mater, yet operative interference was necessary because it was not known in which one of the membranes the pus existed. Bleeding, cold applications, purgatives and emetics Richter considered the principal remedial agents in cases of fatal inflammation of all cranial injuries with or without fractures. Only in concussions was bleeding a bad thing; emetics, though, were excellent. Not until all remedies failed was trephining resorted to in concussions of the brain (Hill). Depressions of the skull with bad symptoms required trephining, otherwise not. For slight impressions were not fatal; the brain soon became accustomed to these and the patient could live the rest of his life with them; besides, the bones often of themselves rose again. Desault maintained a similar opinion. Further signs for an operation were fractures of bones that stuck fast, but were foreign bodies as soon as there were any symptoms. Whenever possible, Richter avoided the sutures, the temporal, frontal and occipital bones, yet positive contraindications were not given by these bones. He also criticised the exposure of the entire fracture by means of the cut through the integument, which need be no larger than necessary to place the top of the trepan. His fundamental principles coincided with B. Bell's and partially with Louvrier's and Mursinna's, although the latter two restricted trephining still more (1800).

*(To be continued.)*

# SOCIETY PROCEEDINGS.

## Southern Surgical and Gynecological Association.

*Proceedings of the Tenth Annual Meeting, held in St. Louis, Mo., Nov. 9, 10 and 11, 1897.*

FIRST DAY—MORNING SESSION.

The Association met at the Southern Hotel, and was called to order by the President, Dr. GEORGE BEN JOHNSTON of Richmond, Va., at 10 A.M.

Prayer was offered by the Rev. S. J. NICHOLS, D.D. of St. Louis, after which an address of welcome was delivered by Hon. CHARLES NAGEL.

President JOHNSTON responded to the address of welcome on behalf of the Association.

After announcements by the Chairman of the Local Committee of Arrangements, Dr. H. H. MUDD, the reading of papers was begun.

Dr. C. A. L. REED of Cincinnati read a paper entitled

GALLSTONES IN THEIR RELATION TO CANCER OF THE GALL TRACT.

The paper was based on a report of four cases in which distinct gallstone history had preceded the history of malignant disease. The diagnosis had been confirmed in all of them by exploratory incision and in two of them by autopsy.

*Case 1.*—Woman, aged 52 years; had hepatic colic during five years preceding, associated with all of the usual gallstone symptoms. During the preceding thirteen months pain in the right hypochondriac region had been constant. Within the preceding six weeks persistent jaundice had developed. Globular tumefaction was felt below the costal margin. Exploratory incision revealed primary carcinoma of the gall bladder and of the gall tract with secondary development in the liver. Diagnosis was confirmed by autopsy.

*Case 2.*—Male, aged 60 years; had gallstones for twenty years; confirmed by their frequent passage *per vias naturales*. Patient had undergone rapid emaciation and during the preceding month pain had become constant. More latterly he became pronouncedly jaundiced. No physical symptoms could be detected. Exploratory incision revealed carcinoma of the gall bladder and gall ducts with secondary nodules in the liver. A calculus was found in the common duct and disintegrated by needle puncture. Primary recovery with amelioration of all symptoms, followed by death four months later. No autopsy.

*Case 3.*—Woman, aged 45 years; had had hepatic colic for several years. During the preceding six months she had been profoundly jaundiced; lost flesh rapidly. Examination of the blood revealed marked cholemia. There were no physical symptoms in the right hypogastrium. Exploratory incision revealed induration about the head of the gall bladder and common duct, to both of which the duodenum was firmly attached for a distance of several inches. Calculus could be felt within the common duct just within its orifice. This could not be dislodged by prudent pressure or disintegrated by needle. It was delivered by incision through the duodenum. The patient never rallied, but died within thirty-six hours after the operation. No autopsy.

*Case 4.*—Male, aged 52 years, constant drinker; had had severe hepatic pain during preceding fifteen years; last attack was persistent and continued for over six weeks. In addition to the usual symptoms he had a vacillating temperature and sweats. Operation revealed empyema of the gall bladder with induration at its ductile end. The gall bladder was stitched to the abdominal incision and drained; death one week later. Autopsy revealed carcinoma of the ducts at their juncture. Numerous small calculi were found in the hepatic duct well up in its main trunk and in a number of its twigs. Multiple abscesses were found in the liver substance.

These cases have a suggestive significance and point to an etiologic relationship. This is explained by the result of persistent irritation of the foreign bodies upon the mucous surfaces, inducing hypertrophy, cell proliferation, and in the event of the existence of original tendencies to cancer of antenatal origin, they induce rapid development of the malignant neoplasm.

Dr. EDWIN RICKETTS of Cincinnati said the important question of the relation of gallstones to cancer of the bile ducts was now receiving the attention due it. In many of these cases cancer had been found near the duodenal end, and the malignancy which results from the presence of gallstones is of such a nature that in many instances the surgeon could not get at the bottom of the pathologic condition except by an exploratory incision. He reported two interesting cases. He said Courvoisier had found malignancy in seventy of eighty-four cases of gallstones, while Bradrowski had found forty cases of cancer straight.

Dr. JOSEPH EASTMAN of Indianapolis spoke of a case that had come under his observation within the last two weeks, which confirmed the remarks of the essayist. He operated on a patient who had symptoms of gallstones and the patient's friends insisted that he had passed several of them. The gall bladder was thickened and indurated. So far as he could determine, there were no gallstones, but advancing malignant disease, which will ultimately destroy the life of the patient. The gall ducts were obstructed. He did not remove a section for microscopic examination. He believes that cancer here, as in the uterine cervix, is often the outgrowth of prolonged localized irritation.

Dr. JAMES T. JELKS of Hot Springs, was fully satisfied that cancerous troubles can occur from chronic irritation as has been said. Thus far, no specific organism had been shown that produces cancer. While his experience was not large in this direction, he had seen cancer of the uterus unmistakably pro-

duced by gallstone infection; hence the deductions of the paper in urging operative interference in all these cases in order to prevent carcinoma of the liver were prudent. The statistics were a revelation to him, as he did not know that 90 per cent. of the cases of carcinoma of the liver were preceded by a history of gallstones.

Dr. RUFUS B. HALL of Cincinnati, expressed himself as being firmly convinced that the deductions from the paper would be sustained by future work along this line. Nine cases tabulated by him confirmed the deductions of the essayist. He cited one case. Eight years ago Drs. Reed and Ricketts saw him do a gall bladder operation on a patient who had given a distinct history of gallstone colic for fourteen years. There was occasional icterus, and then a period of comparative freedom from it for a half a year, and then there would be another attack of gallstone colic. The last attack came on four or five months preceding the operation, when the patient became icteric, and so remained until surgical interference was resorted to. She had a distended gall bladder and enlarged liver. There was some doubt as to whether or not there was a complication other than an impacted gallstone in the common duct. Operation revealed a distended gall bladder with four or five stones in it and cancer of the gall ducts. Undoubtedly the cancer in this case was of recent development, dating perhaps from the patient's last illness. Dr. Hall thought that if she had been operated on preceding the last eight months of her illness cancer might not have developed.

Dr. A. M. CARTLEDGE of Louisville, said that while he did not question the practical nature of the deductions drawn from the paper, yet it was much easier to establish a causative relation between cancer and gallstones than it is between gallstones and cancer. When the frequency of gallstones is considered, and that they occur in perhaps one case in three of every individual, and that carcinomatous processes in the gall ducts are among the most frequent of all causes of gallstones, it was not at all unlikely that in reasoning on this subject the cart was sometimes placed before the horse. When we have a positive well established history of gallstones for several years and an individual develops malignant disease of the gall bladder, the inference was strong that there might have been a relation between the previously existing calculus trouble and the subsequent malignant disease. In many cases presenting a history of the passage of gallstones, the patient may have had beginning carcinoma of the ducts for two or three years previously. He endorses the views of the essayist as regards operative interference in cases of gallstones.

Dr. L. MCLANE TIFFANY of Baltimore, agreed with Dr. Cartledge that the causative relation between gallstones and carcinoma was not well established at the present time; but that carcinoma was accompanied by gallstones and found frequently to exist was well known. These cases should be operated upon sooner than is usually done.

Dr. THADDEUS A. REAMY of Cincinnati, took a more conservative ground than the preceding speakers, and said that the Association ought not to go on record to the effect that because gallstones are associated with cancer the abdomen of every man or woman must be cut open lest he or she, as the case may be, may have cancer. Taking the rural and city population, he ventured the opinion that in not more than 15 or 20 per cent. of cases of gallstone was cancer associated with this condition. The subject would have to be studied more carefully and thoroughly before the proof is convincing to him.

Dr. REED, in closing, re-emphasized the significance of the persistent coincidence of cancer in long-standing gallstone cases. His own brief experience embraced cases in which there had been long-standing antecedent gallstone history.

### DISPOSAL OF THE STUMP IN APPENDICITIS OPERATIONS

was the title of a paper by W. D. HAGGARD, Jr., M.D., of Nashville, Tenn. The author considered this disease pre-eminently a surgical affection. Early surgical opinion in making a diagnosis was essential. Surgical isolation of the infected appendix was as sound and imperative a practice as the hygienic isolation of any of the infectious diseases. The author advocated early operation, and mentioned Mayo Robson, Willy Meyer and McBurney, as advocating prompt operative interference. The more imperative and explicit operative indications were specified.

The pioneer method of ligating the appendix like an artery or the stump of an ovarian tumor or appendage pedicle, was shown to develop therefrom by reason of infection of the stump, etc. Subsequent perforation after simple ligation occurred sufficiently often to cause the abandonment of this method. The various methods of disposing of the stump by invagination were discussed, and the modifications and technic employed by Van Hook, Dawbarn, McBurney, Murphy and Morris were described. The ideal of all surgery was completeness applied to the surgery of the appendix, which was that of total extirpation of the organ. The author stated that it had remained for Deaver to practice this method in suitable cases, which is as follows: After freeing the appendix from adhesions and meso-appendix, the cecum is stripped of its contents and grasped between the fingers and thumb of the left hand, the appendix being held by forceps and cut off flush with the colon, and after being amputated at the site of its former junction is united by continuous Lembert sutures, while the cecum is still held securely with the left hand just as in a gunshot or stab wound of the intestine. Sutures may be disposed in two layers, first uniting the edges of the wound, and second approximating the peritoneal covering to the cecum over it. This method was not applicable to cases where the cecum is bound down by adhesions preventing its delivery in the incision. It is necessary to prevent the escape of colon contents by accurate suturing of the cut end.

Total excision of the appendix with closure of the hole in the head of the colon was said to do away with the following dangers: 1, subsequent perforation of the stump under the ligature from infection in its own cavity; 2, abscess of the wall of the cecum from invagination of the infected stump; 3, continuance of infected process from stricture in the stump between distal ligature and the proximal opening of appendix into the cecum; 4, imperfect invagination with incomplete drainage of the stump on account of the cecal wall being thickened and stiffened with inflammatory exudate.

The author reported five cases in which he has recently employed this method with entire satisfaction.

Dr. GEORGE H. NOBLE of Atlanta followed with a paper entitled

### REPORT OF FOUR CASES OF ABSCESS OF THE UTERUS.

The first case was of puerperal origin, the operation being done at the end of the second week. There was a pus tube and abscess of the left ovary. The appendages on the right side were normal. After separating extensive adhesions for unilateral disease, an abscess of the fundus uteri about the size of an ordinary lemon was discovered, which was excised, curetted and cauterized with carbolic acid. The cavity extended from the median line to the stump of the appendages on the left, which was turned into it and fastened with sutures to prevent the formation of dead space. A glass drain was dropped into Douglas' pouch, after flushing the abdominal cavity. This woman made an uneventful recovery, and has been well for two years without any pelvic disturbance. Three similar cases were reported in detail by the author.

The four cases show what any surgeon will sometimes do for a septic uterus when given a chance. They also support the view that it is not always necessary to extirpate the womb in suppurative inflammation of its parenchyma, and such operations should be more closely confined to cases in which the uterus is thoroughly septic or riddled with abscesses. The latter are rare, fortunately, for they do not stand operations well. The cases also show that infection of a puerperal uterus does not necessarily mean that the entire organ is hopelessly contaminated, but that intense foci may be circumscribed by nature and removed without sacrificing the organ.

Dr. A. M. CARTLEDGE endorsed the method pursued by the essayist. He thought the recovery of four women with systemic infection by such a procedure showed the wonderful power of the peritoneum, if drained from below, to take care of a violent form of sepsis. The results following this method were better than those of hysterectomy for infected uterus complicating childbirth or abortion.

Dr. J. WESLEY BOVEE was pleased with the advanced position taken by the author of the paper. Gynecologists had to fear, however, the future usefulness of the uterus. It was not so much the destruction of tissue and the formation of abscesses, but the resulting cicatricial tissue and connective tissue formed might interfere with the function of the uterus in subsequent labor. It might tend to the production of rupture of the uterus. At the same time, these points were not of sufficient importance to justify operators in not following out a conservative procedure such as had been described.

Dr. JAMES T. CROFFORD of Memphis, said in cases of abscess of the uterine wall originating from the mucous membrane, if the cervix was kept dilated, the uterus freed of everything with a curette, and he does not hesitate to use a sharp curette in these cases, and thoroughly cleansed and packed with gauze, these abscesses would open into the endometrium, followed by relief in the majority of cases.

Dr. RICHARD DOUGLAS called attention to the kind of germ that produces infection. In well known streptococcus infection it was not the tendency of inflammation following this

form of infection to circumscribe itself. It was diffuse infection. In treating cases of infection following abortion or full term labor he had used the Carossa method with decided benefit.

Dr. W. E. B. Davis of Birmingham, said that uterine abscesses following abortion or the puerperal state could be treated successfully by incision and drainage in a good proportion of cases, even though the abscesses may have extended beyond the uterus. Illustrative cases in which this treatment was resorted to were cited.

Dr. J. G. Earnest favored an exploratory incision to ascertain whether or not the patient was a fit subject for the method of treatment pursued by Dr. Noble. In the event the case was not suitable for the application of this method, very little damage was done by such an incision.

Dr. R. M. Cunningham said it was extremely difficult in general surgery to get primary union by curetting and disinfecting an abscess. By curettement and cauterization it was hard to destroy the staphylococcus, and much more so the streptococcus, which perhaps extends beyond the abscess wall and continues its infective influence.

Dr. Noble, in closing, emphasized the point that the uterus was the seat of infection and not the appendages. Only in cases where there are one or two, or possibly three abscesses, is this method of treatment applicable.

### A STUDY OF RETROPERITONEAL NEOPLASMS AND SUPPURATIONS WITH SPECIAL REFERENCE TO DIAGNOSIS.

By Dr. Richard Douglas of Nashville, Tenn.

The author accepted the definition of Mr. Lockwood for retroperitoneal neoplasm, namely, a solid or cystic tumor growing behind the peritoneum into the folds and not connected with any of the great retroperitoneal organs.

*Pathology.*—The type of tumor usually encountered in the retroperitoneal space belongs to the connective tissue group. A careful study of the cases shows that they are of a mixed variety, the predominating type being sarcoma and lipoma, but occasionally fibroma and myxoma are met with. An analysis of the twenty cases of solid retroperitoneal tumors collected by Rogowski showed sarcomatous tissue in every one. The peculiarity of retroperitoneal sarcoma is that it is encapsulated.

These tumors occur after maturity, from twenty-eight to fifty-nine years. Mudd's patient, the oldest on record, was 71 years of age. In one case reported by Austein, the patient, a female, was 4 years of age, an age in which sarcoma is very rarely observed.

The duration or life history of retroperitonal tumors is usually about six months, though some cases have lasted for years.

*Causation.*—There is no recognized cause for these growths, yet in some cases a malignant growth appears as secondary to some local injury or suppuration. The two special symptoms that occur in the history of postperitoneal growths are intestinal obstruction and edema of the extremities.

*Retroperitoneal cysts.*—A genetic classification of retroperitoneal cysts is more difficult, in view of our very meager knowledge of the subject, than that of solid neoplasm.

The author then considered at length cysts of the pancreas.

A clinical feature of intraperitoneal growths is that the area of resonance varies with the position of the patient; consequently it is not surprising that many a dry tap has been made through a failure of recognized clinical peculiarities.

While not an advocate of the use of the aspirator in intra-abdominal diagnosis, yet under proper conditions the author thinks this instrument will reveal valuable evidence, not only as to whether the growth is solid or cystic, but as to its nature. In retroperitoneal sarcoma aspiration reveals only a little blood or blood serum in the needle. This sign enabled Weir and Bull to correctly diagnosticate a case reported by Devlin.

Dr. J. Wesley Bovee of Washington, D. C., contributed a paper on

### TUBAL AND OVARIAN HEMORRHAGE RESEMBLING RUPTURED ECTOPIC PREGNANCY.

The author said that a few years back pelvic hematocele was a condition that every practitioner met occasionally, and many were the supposed causes of it. When the subject of ruptured tubal pregnancy was so universally taken up, some of the most aggressive investigators told us to search in every case of pelvic hematocele and we would find a ruptured ectopic pregnancy. This dictum, though not endorsed by all observers, found a ready following, and to this time the majority of students of diseases of the female pelvic organs have accepted it. Many cases have been reported in which a presumptive diagnosis of ruptured tubal pregnancy has been made, cases in which such symptoms as shock, sharp pain, irregularity of menstruation, even to amenorrhea, the presence of a small tumor in the pelvis, and even death were present, and yet the autopsy has revealed no pregnancy, but instead a hemorrhage from a Fallopian tube or an ovary, or both. The speaker offered conclusive evidence against the positive statements that have gone out that we will always find this condition in these hemorrhages. There were many instances in which women were deeply wronged by these diagnoses. Oftentimes the hemorrhages have occurred in virgins at a very young age and in widows above reproach. These hemorrhages result from ectopic pregnancy, from malignant disease of the uterus, appendages or rectum; from varicosed veins in the broad ligaments; from disease of the appendix; from inflammatory disease of the tubes and ovaries and many other causes.

The author's remarks were restricted to disease of the appendages, and he cited a case in detail to exemplify them.

An examination of the specimen removed by operation showed it to be a hemorrhagic cyst of the ovary that had opened into the peritoneal cavity, and was connected with the cavity of the Fallopian tube by a sort of canal or sinus formed by adhesions over the shallow groove of the ovarian fimbria of the Fallopian tube. The remainder of the fimbriated extremity was closed by adhesions. The tube was distended by a large blood clot, quite dense and dark, and which upon section and careful separation showed nothing but blood. The wall of the cavity left after removal of the clot from the tube was perfectly smooth and even. As a result of careful examination, including the use of the microscope, the case was pronounced one of hemorrhage without the presence of pregnancy.

Dr. Richard Douglas had twice removed hematosalpinx (unilateral) in which there was no possibility of extra-uterine pregnancy. He also reported an interesting case of blood cyst of the ovary in which there was no disease of the tube and no special cause giving rise to it. Usually the cause of blood cyst of the ovary was torsion of the pedicle. This was not the cause in the patient he had operated upon.

Dr. James T. Crofford reported a series of anomalous cases of extra-uterine pregnancy before the Tennessee State Medical Society this year. One of the cases was complicated by an ovarian cyst as large as a good-sized fist. He had come to the conclusion that these cases were all due to ectopic gestation. Personally, he was obliged to the essayist for disabusing his mind of this. He had examined the specimen of Dr. Bovee with a great deal of interest and believed there was no pregnancy connected with it.

(*To be continued.*)

## American Public Health Association.

*Twenty-fifth Annual Session Held in Philadelphia, Oct. 26-29, 1897, at the Hotel Walton.*

(*Continued from page 1019.*)

### Tuesday—Evening Session.

A formal opening of the session was held, to which the public were invited. Prayer was offered by Rev. Wm. N. McVickar, D.D., Rector of the Church of the Holy Trinity, Philadelphia. Dr. Benjamin Lee, the Chairman of the Committee of Arrangements, in the absence of the Governor of Pennsylvania, welcomed the Association, and was followed by The Hon. Charles F. Warwick, Mayor of the city.

### THE ANNUAL ADDRESS

was then delivered by Dr. H. B. Horlbeck, Health Officer of the city of Charleston, S.C.

He expressed his appreciation of the honor conferred by his election to the position of President. The Association had happily chosen this city as its place of meeting, a city which for a century has held the proud distinction of being the foremost and best in professional attainment; a city which has always been in the front rank of the noblest aspirations in a calling where the first requirement is an abnegation of personal and selfish consideration, which exacts devotion to the wants of mankind when they become sufferers. Along the century's diapason the great names of Rush, Wood, Chapman, Gross, Leidy, Jackson, Mitchell and Mutter come down to us in consonant accord with the best and truest ideals of humanity. From these and other great worthies of this city, the wisdom of the ages has been given to thousands of our colleagues who have glorified our teachers by constant self sacrifice and laborious loyalty to their alma mater. To Philadelphia we are under obligations for the establishment, during the first half of this century, of the best schools of medicine in our country. The lights in the sacred fame of medical lore have been kept constantly bright, and today Philadelphia is second to none in

her great schools for the propagation of medical knowledge. From the earliest dawn of history we learn that the nomads, and later the denizens of cities, exercised care in removing from their surroundings the dangerous accumulations resulting from congregated habitations. From the use of the simplest methods which gradually increased in scope as modes of living became more complete in character, the highest scientific knowledge is now demanded to meet the requirements of the great cities and peoples of the earth. The theories based on the humors of the blood have given way to a knowledge of the denizens of the blood, which are being recognized as surely as the flora and fauna of our fields. The microscope gives us the key-notes of our temporal welfare. Pasteur says: "wherever and whenever there is decomposition of organic matter, whether it be in the case of an herb or an oak, or worm or whale, the work is done exclusively by infinitely small organisms. They are the important, almost the only agents of universal hygiene; they clear away more quickly than the dogs of the streets of Constantinople or the wild beasts of the desert, the remains of all that has had life; they protect the living from the dead."

He next gave in some detail a history of the Association since its organization in 1872, and now, after twenty-five years, nearly two thousand names are enrolled in its membership. During its existence some of the most important discoveries in the domain of medicine and surgery have been made, and the science of bacteriology has had its birth and development. Nearly every one of the score or more of bacteria that are pathogenic, and that seriously menace human life, have been found and described during the existence of this Association. Since the last meeting at Buffalo the method of diagnosing typhoid fever, as discovered and described by Widal of Paris, has been elucidated by Dr. Wyatt Johnston of Montreal. He has shown that when a drop of blood from a typhoid fever patient is brought in contact with a typhoid fever bouillon culture of the bacillus typhi abdominalis there is an agglutination of these bacilli and a cessation of their mobile characterization. This method is now being utilized in a number of cities, and arrangements have been made whereby physicians can send a drop of blood, moist or dry, in a suspected case of typhoid fever, to a bacteriologist, who will in a few hours determine the disease. During the life of the Association the processes of taking care of contagious diseases have entirely changed. It is now the essential feature of the practice in all communities to confine all such cases to the individual affected. The water supply of all communities is one of the most important matters, and sanitarians will be surely called on to care for it. Whether the source of supply be shallow or deep wells, cistern, river or lake water, each involves special problems in arranging to free them from polluting causes. Parkes estimates 12 gallons daily as about the quantity required by a man for cooking, potation, ablution and house-washing purposes. London finds 35 gallons per head none too much, and some cities in our own country, notably Philadelphia, are furnished with over 200 gallons per head per day. An abundant, increasing supply of water carries in its train incalculable possibilities, not only for cleanliness, but for the development of the industries which will employ tens of thousands of people who may thus obtain means of occupation for existence, and with good maintenance increase their powers of resistence to disease. It would seem needless to call to the notice of the members the great issues involved in a pure water supply, free from disease-producing germs. Diseases which are appalling in their death rate are transmitted principally by water. The most common mode of conveyance of cholera and typhoid fever is by water, and many other diseases are believed to be so transmitted. Greater purity is demanded every year. When the supply is taken from lakes every source of pollution is removed; when taken from a river the problem is more intricate and vexatious, as it involves the prohibition of cities situated further up from using the river as a dumping place for sewage. Where rivers must be so relied upon, filtration, mechanical or artificial, must be resorted to, and a daily microscopic and chemic examination of the water be made to ensure that the water is free from dangerous bacteria or poisonous compounds.

He next referred to the great change that has been made in the United States during the last twenty-five years in quarantine methods, especially in shortening the time of detention, and the methods of disinfection. Detention has been shortened from twenty-five to fifteen and ten days, and in Southern ports for yellow fever to five days. This has been largely due to the energy and sagacity of a member of this Association, Dr. Joseph Holt, the distinguished ex president of the Louisiana State Board of Health, in his efforts to protect the port of New Orleans from yellow fever. Many methods have been in use for disinfecting vessels at the New Orleans Quarantine Station for the last twenty-five years, among which are the filling the holds of the vessels with sulphurous acid gas; raising the temperature to 350 degrees F. and placing textile fabrics in a solution of mercuric chlorid. In 1886 a heating chamber was devised to be used in conjunction with mercuric chlorid and sulphur fumes, the latter being driven into the holds of vessels by a revolving fan. Many improvements have since been made, and a plant is now in use by which the temperature is raised to 230 degrees and the personal effects of the passengers are disinfected with quickness, certainty, and with little injury. It is estimated that over 95 per cent. of all the yellow fever that has reached this country has come from Havana. A committee of this Association has been appointed to bring this vital question before the governments of this country and urge the governments of the countries interested to prompt action in this matter. This would seem to be the occasion when not only the recommendations of our committee on yellow fever should be carried out, but that this body should make a demand on our general government that a commission of expert bacteriologists should be sent to Havana and Rio, and be kept there until the materies morbi have been discovered, until the secrets of this marvelous disease have been unfolded. The examples of other countries in the solution of the problems of cholera, tuberculosis, bubonic plague and leprosy may be noted. Why should we not solve the problem of yellow fever? A systematic effort continuously made will be crowned with success. He recommended that a committee from this body be oppointed to wait upon the President of the United States to carry out the idea.

He then referred to the progress being made in conquering consumption in the discovery of the tubercle bacillus by Koch. There is in every land a profound recognition of the responsibilities of the governing classes, and that a preventable disease should be prevented. The State Board of Health of New York has declared tuberculosis to be a preventable disease, an infectious and communicable one, and provides for a detailed report of all cases attended by practitioners in that city. He commended the action of that board to every sanitarian in the land who is charged with the protection of the public against the spread of preventable diseases.

He then referred to the experiments of the State Board of Health of Massachusetts at Lawrence on the utility of filtration of the water supply for the removal of typhoid fever germs; the average was the removal of over 98 per cent. In looking over the work of this Association during these twenty-five years we have reason for exultation and pride. We bequeathe this noble heritage to our successors in this work. We transmit to them the light that was handed down to us from our predecessors, and we bespeak in return for this great cause the same loyalty and untiring devotion that we have given it.

### WEDNESDAY—MORNING SESSION.

The Association reassembled at 10 o'clock. A number of new members were elected and the vacancies in the Advisory Council were filled, all old members who were present being reappointed.

Dr. HIBBERT HILL, of the Board of Health of Brooklyn, read a paper on

### ANALYTICAL WORK ON PUBLIC WATER SUPPLY,

showing an instrument for the collection of samples of water for chemic, microscopic and bacteriologic analysis. This apparatus, designed by Dr. Hill for use in the Rockville Center Laboratory, established for the sanitary supervision of the Brooklyn water supply, has stood the practical test of constant use for a year. Its strength, simplicity and ease of manipulation commend it to those who require samples of water from ponds, rivers or streams where a sample of the water is desired at depths from two or three inches to fifteen or twenty feet. The depth, in fact, is only limited by the convenient length of the pole attached. The apparatus may be further modified so as to allow of collection of samples at any depth by the use of cords and weights.

The apparatus consists of a holder for the bottle and a device for the withdrawal of the stopper, when the bottle is submerged to the desired depth.

The holder is shaped like half a hollow cylinder and is of such dimensions as will fit the bottle usually employed. It has a circular bottom with a raised edge and upon this the bottle rests. The holder is made of galvanized iron. The bottle is secured to the iron case by a strap of brass, hinged on one side of the holder and fastened by a catch on the other. The bottom piece of the holder is perforated to permit the ready passage of the water through it, and in consequence there is greater ease in handling when under the surface. Holes at the side

on a level with the mouth of the bottle when it is in position, allow free access of the water from every direction, while the bottle is being filled.

The device for the withdrawal of the stopper from the bottle consists of an upright rod of wood passing through two brass rings, which are rigidly secured at right angles to the inner side of the iron holder. These supporters are so placed as to center the end of the wooden rod over the mouth of the bottle. The wooden rod has a spiral spring of brass wire wound about it and fastened at the lower end to the rod of wood, and at the opposite end to the upper brass ring through which the rod passes.

The rod upon its lower end has the clamp device for holding the stopper. This is composed of three brass strips bent in such a manner as to grip the top of the stopper tightly. The style of stopper used in all the bottles for which this kind of grip was made, is known as the mushroom stopper, and as they differ slightly in shape in different styles and shapes of bottles, require a slightly different bending of the brass grips in order to hold the stopper firmly.

The largest of the three collectors designed has one of its brass grips hinged and snaps down over the stopper, holding it firmly. The other two have rigid grips and depend upon their spring to hold the stopper in place.

The upper end of the wooden rod carrying the clamp for the stopper, has a wire attached to it by means of a ring. The wire passes up the pole, which is clamped to the iron holder. It is by means of this wire that the stopper is raised or lowered in the bottle.

The operation of collecting the sample consists in placing the bottle in the iron holder and securing it by the brass strap around the middle of the bottle. The clamp for the stopper is at the same time properly secured. The apparatus is then lowered into the water to the desired depth by means of the pole, the wire pulled and held, thus raising and holding the stopper until the water has filled the bottle. The wire is then released and the spring upon the wooden rod, before described, forces the stopper back into place quite securely. This does not allow of any more water entering the bottle while being drawn to the surface, even if the bottle is only partially filled with water.

The apparatus is then drawn from the water, the bottle removed and another substituted, and the operation repeated as often as desired.

The strength of the apparatus permits of very rough handling in the exigencies of sample collection, under all sorts and conditions of weather, temperature and travel. Its simple construction makes repair easy, should any accident occur, and insures rapidity in the work of collection, which is an important detail in routine work on an extensive scale. The uniformity of collection secured by this means is extremely desirable where serial and parallel microscopic, bacterial and chemic samples are being taken.

On Wednesday, after the usual announcements and election of new members, a paper on "Pollution of Water Supplies," by Deputy Surgeon-General CHARLES SMART of Washington, D. C. This committee had been engaged in perfecting the standard methods for bacteriologic examinations. It was believed that concerted effort would be of more value than individual work. His report being completed he asked that the committee be discharged, which was agreed to.

Dr. ROQUE MOCOUZET, delegate from the Federal District of Mexico, read a paper,

ON THE CITY OF MEXICO AFTER THE DRAINAGE OF THE VALLEY AND THE SANITATION WORK.

The city is 2,265 meters above sea level, and in the 19th degree of latitude. The mean temperature for fifteen years has been: January, 12.9 degrees C.; February, 13.7; March, 15.8; April, 17.7; May, 18.1; June, 17.6; July, 16.9; August, 16.6; September, 16; October, 14.8; November, 13.5; December, 12. The mean atmospheric pressure for fifteen years, 586.37; maximum, 594.19; minimum, 579.80. The primitive city was built on a lake; there was a complete system of canals like Venice. Now it is surrounded by lakes, five in number. The object of the drainage is to give an outlet from the valley to the water which falls within its circumference. The work consists of three parts. A canal which starts from the gate of San Lazars, a length of 47 kilometers and 580 meters; its line follows on the east side of Guadelupe range of hills, then between that range and lake Texcoco, changing a little before it arrives at the 20th kilometer to the north so as to cross lake San Cristobal diagonally, then a part of lake Xaltoc and part of lake Zumpango, of the tunnel close to the town of Zumpango. The tunnel is lined in the upper part with brick. The outer lining is of artificial stone made of Portland cement and sand. The tunnel is calculated for a current of 18 cubic meters per second; twenty-five shafts open with a width of 2 meters and length of 3 meters, at a distance of 400 meters from each other. These ventilate the shaft and aid in the work. The depth of the shaft varies according to the topography of the ground. It will be necessary to construct twenty-three structures to afford passage for the railroad, wagon road and important water courses which require to cross the canal. Five of these by aqueducts to carry rivers; four will be iron bridges for railroads, and the rest are dedicated to the passage of main roads and accommodation roads. The works have two objects, the first to receive the surplus water and sewage of the valley, of the City of Mexico, and carry it away, and the second to control the entire water of the valley, affording an outlet whenever it is found necessary for those waters which might prove prejudicial.

The drainage of the city is the combined water carrying system. He exhibited a sketch to show the plan. The pipes will be laid to carry the water from La Vega canal, that being the source from which the sewers will be flushed, and this will be properly done. There will be no dead ends, as they constitute a focus of infection. The water will be carried to the south end of the 12th Street canal. It will be possible to flush every day all parts of the sewers by sudden rushes of water having with the fall a velocity of one meter per second. In many cases it will be 2 meters per second and even more. Thus will be kept up a constant current of water and with a velocity never below 60 centimeters per second. Up to the present day no city in the world can keep its sewers clean every day. When all is complete, we can receive in the winter, but principally in the summer because then we are more sure of means against the cold, our friends from Canada and the United States if our dear American Public Health Association will consent to come to us, and which contributes to unite the bonds of sympathy with our Republic.

REPORT OF COMMITTEE ON DISINFECTION.

At the last meeting of the American Public Health Association Prof. Franklin C. Robinson of Brunswick, Maine, member of the Maine State Board of Health, was made chairman of a committee on disinfectants and authorized to appoint four associates. He selected Dr. George M. Sternberg, surgeon-general U. S. Army; Dr. Wyatt Johnston, bacteriologist to the Provincial Board of Health, Montreal, Canada; Dr. Alvah H. Doty, health officer, port of New York, and Dr. Eduardo Licéaga, health officer City of Mexico. Owing to the absence in Europe of two members of the committee, Drs. Sternberg and Licéaga, the main consultation has been between the other three members. It was thought best to give special attention this year to gaseous disinfection by formaldehyde, which was brought to the attention of the sanitarians by the chairman and others at the Buffalo meeting. Professor Robinson for the committee reported that the use of formaldehyde had very much increased. Instead of the one apparatus which he presented at Buffalo there are now a half dozen or more. He gave a summary of the matter under the headings: 1. What is formaldehyde? 2. Its proportions. 3. Its preparation. 4. Its manner of use. He said it was a gas, non-poisonous to higher forms of life, but very destructive to bacteria. He said it was made from wood or methyl alcohol by processes of oxidation by which $CH_4O$ becomes $CH_2O$; that this oxidation was generally brought about by bringing the vapor of wood alcohol mixed with air in contact with hot platinum. He said it was dissolved in water and sold under the name of formalin, formol, etc., and might be obtained from this solution for use as a disinfectant or made directly from wood alcohol. He then went on to describe the various forms of apparatus devised for that purpose and referred to tests with those made by himself and Drs. Doty and Johnston of the committee. He said that the main thing was to have enough of the gas present in a room to ensure thorough disinfection and to let it act for a long time. He gave figures showing that 2.5 grams should be used for one cubic meter of room space. He said he was not prepared yet to pass judgment on all forms of apparatus, but could say that several of them would do this. As to penetration he said that there was not quite as much as the first experiments seemed to show, but still with thorough use he thought it would go where disease germs were likely to. On the whole the report was favorable to its use for the disinfection of rooms.

Prof. SEVERANCE BURRAGE, Department of Sanitary Science, Purdue University, Lafayette, Ind., read a paper on

FUMIGATION EXPERIMENTS WITH FORMALDEHYDE GAS.

It was an account of some experiments at the Newton (Mass.) Hospital with four different generators, the results of which indicate inefficiency of these forms of apparatus to entirely

disinfect rooms when operated under conditions to kill all pathogenic bacteria as existing in these rooms. We have several ingenious devices. Without doubt all claims are made with perfect honesty, because so many of the earlier experimenters with this gas gave apparent evidence of its marvelous power to destroy bacteria. Later results indicate too much has been claimed, and these experiments were undertaken on that account. A room, 1,870 cubic feet in dimensions, was subjected to the action of four different generators. All conditions were as much alike in each as possible. Each apparatus was tested twice or even four times. The autoclave with its own operator was tried. The room was closed six hours, and then immediately, as soon as we could enter, the infected cover slips were removed to the laboratory and each placed in agar films in Petri dishes. After five to eight days of incubation at 23 degrees C., growths appeared for all except typhoid fever. All control cultures gave vigorous growths in forty-eight hours. When after seven days' incubation no growth appeared, by taking a platinum needle and scraping over the infected part of the cover slip and inoculating serum tubes with it, growths were obtained except typhoid. The germs were not all killed, but the gas had the effect of greatly inhibiting the growth. He detailed the procedure with each apparatus in turn. From all these results it is impossible to recommend one apparatus over the other. Each did germicidal work better than sulphur as ordinarily used. The principal conclusion is, that the generators did not kill all pathogenic forms as claimed, in a certain space of time. I do believe in formaldehyde, but have no confidence in the class of generators now offered. There are so many conditions as to age and nature of the cultures exposed, the method of exposure, etc., all of which enter into the results, that a large chapter of results must be tabulated to show just what nature will do. We are beginning to understand that the formaldehyde gas will, under proper conditions, kill germs, but in the light of such varying results it is impossible to set a definite formula for room disinfection. However, for all practical work, so far as we know at present, formaldehyde is the best gaseous disinfectant.

Dr. E. A. DE SCHWEINITZ, Chief of the Biochemic Division of the United States Department of Agriculture, read a paper on "The Determination of the Amount of Formaldehyde yielded by the Formaldehyde Lamp." There was a great variation as to the amount of gas each lamp gives. Some gave 10 per cent., others 5 to 6 and occasionally 15 per cent. One lamp for one day gave 10 per cent., while the same lamp under exactly the same conditions gave on another day only 1 per cent. When tables were used, 50 per cent. was obtained where 100 had been promised.

Dr. A. W. REYNOLDS said that in his experiments at Chicago he had tested several lamps; some were not sufficiently rapid, others did better.

Dr. J. MCFARLAND, Philadelphia, said the germs grew as they did when the gas had not been used. He disinfected a room, opened it, and found the germs of diphtheria grew readily. He was disgusted with these lamps.

Dr. SWARTZ, Secretary of the State Board of Health of Rhode Island, found all that he had tried a failure. We must have a simple, easily operated means. We shall in future find something of use, for he believed we are now on the right track.

Dr. J. F. MCSHANE, Health Officer of Baltimore, detailed some experiments in the laboratory with formaldehyde. He endeavored to determine its action and value on household matters, as blankets, mattresses, etc. He employed the bacilli of typhoid fever and diphtheria. Its penetrating power is poor. He tried the Trillat autoclave; it acted well except as to penetration. Where the bacilli are exposed the gas acted well, but when they were imbedded, as in a mattress, it failed.

Dr. H. D. PEASE of the Bacteriological Laboratory of Philadelphia found the spray a failure. The solution must be strong. When the proportion is one of formaldehyde to three of water it will succeed. Having tried both the autoclave and that of the Sanitary Construction Company, he felt that much more experimentation is needed to obtain what we need as a disinfectant. He found that the walls absorb the gas and after three days they would give off the gas freely. Paper is most difficult to penetrate.

Dr. A. W. SUITER of Herkimer, N. Y., read a paper on

### THE BARBER SHOP AS A MENACE TO THE PUBLIC HEALTH.

This mode of infection has long escaped the notice of sanitarians. In ancient times cleanliness was provided for because we see the symbol of a brass basin and a striped pole as the sign of the barber. The basin was cut to receive the throat of the customer, so as not to spoil his clothes. At present in France, the police regulations require all instruments to be of metal as far as possible. Thus they can be easily sterilized. All these must be submitted to a heat of 100 C. before and after use; brushes must be placed in boiling water before and after; the hands must be cleansed from one customer to another, the towels must be sterilized, pulverizers are used in place of powder puffs, the hair is disinfected and promptly removed and a chemic solution is prescribed for various purposes. Patients with syphilis have been seen in the shops, with foul ulcers on their faces. One instance occurred to the speaker who encountered a patient just rising from the chair which he was called to fill, so he left and since has permitted his beard to grow, and when compelled to visit a shop he takes along his own apparatus, at the risk of being called a crank. Instances in numbers might be collected where disease has been transmitted in this way. All know it. Every step is dangerous and precautions should be observed. Sponges are not used by a surgeon a second time, yet a barber employs one again and again, a slight squeeze being all it gets from one case to another. Some things the Parisian regulations do not seem to cover, as the alum stick to staunch the blood in case of a cut, and the block of magnesia to dry the skin. Of course some shops are more careful than others. The New York legislature has had before it for years propositions for a law to correct this evil. The organized barbers themselves ask this for their own protection, and to elevate their business. They desire a board of examiners and licensers appointed, so that no one can practice the art unless properly prepared. They would demand a scientific knowledge as to disinfection and general sanitation. This will be pushed at the next session. If enacted, no more can be desired. Why not all occupations licensed? All should be qualified to do the work they set up to do. Horseshoers are now thus qualified in New York. Since the information came from abroad relative to the law in Paris, the medical journals and newspapers comment favorably on it. The people will be quickly educated and the action will be supplemented by favorable sentiment. Let us adopt for our motto, in this respect, the Spanish proverb, "Dicho y hecho," no quicker said than done, and with great promptitude demand an intelligent and unprejudiced inquiry into this fruitful source of disease. If surgeons and dentists are morally and in a negative sense under obligation to disinfect and sterilize their instruments, why not as reasonable to hold the barber responsible; and why not within the province of health boards to protect the public? This Association is striving to regulate the disinfection of cars and demand the stoppage of spitting, and an individual communion cup, and in divers other fields are endeavoring to compel the heedless public to care for themselves; may it not be said that the hygiene of the barber shop far exceeds in importance most of these undertakings?

MRS. JOHN H. SCRIBNER, Philadelphia, gave in some detail the work done by the Woman's Health Protective Association of Philadelphia. Their object was to promote sanitation; to protect their families. They had worked to obtain water filtration and had employed skilled persons to conduct experiments and to visit places where filtration was being done. They had succeeded in getting the Board of Health to place placards in the street cars forbidding spitting in the cars. They had inspected the bake shops and succeeded in obtaining the closing of those which were filthy, and in aiding the bakers themselves to have better and more sanitary working places. They had employed a sanitary expert from abroad to inspect the public schools, and presented a full report to the mayor, so that the proper steps might be taken to have these corrected. In a word, they were determined to keep up the work until they had succeeded in having the entire city in a proper sanitary condition.

Dr. F. W. WRIGHT, Health Officer of New Haven, Conn., read a paper on the

### DIAGNOSIS OF SMALLPOX.

This is very important that we may be able early to protect the families from further infection. It must be remembered that the period of incubation of this disease is fifteen days after exposure. Occasionally it appears earlier, as in one week after exposure. We have a chill, with subsequent febrile symptoms: intense headache and backache; the temperature is about 103 to 105; this remits on the eruption appearing. The eruption is generally on the third day; may be earlier; or even later to the fifth. Just before we have a redness of the skin, like erythema, when it may be mistaken for measles. At first the eruption is macular, soon it becomes papular; appears first on the face, then on the neck and wrists, next the chests and extend over the whole body. The feet and legs are last. When it becomes papular, we have an induration of the tissues, like shot under the skin, which is characteristic of smallpox. The center of the papule which has been elevated, forms a vesicle; this is never observed under twenty-four hours from the for-

mation of the papule. These vesicles are surrounded by an erythema, and as it progresses, the depression forms making it umbilicated, which gradually becomes more pronounced. The vesicle is filled with a milky serum, it is easily ruptured, and exuding forms a scab. It gains its full size in four or five days. Now the temperature lowers. He then detailed the differential diagnosis between scarlatina, measles, acne, syphiloderma and varicella. In scarlatina, the temperature is high and remains so; there is no remission with the appearance of the eruption; usually there is vomiting; the efflorescence is impalpable to the touch; it appears on the chest and arms first, then on the face; the throat is congested; the headache and backache are not so pronounced; there are no papules nor vesicles. In measles the lungs are irritated from the first, bronchitis; the eruption appears on the face and extends to the rest of the body and more rapidly than in smallpox; the temperature does not fall; the lesions appear in a crescentic form, are pale red, slightly elevated, never papular, or vesicular. If we stretch the skin, it is smooth without the induration beneath as in smallpox. In acne, the eruption is chronic, there is no fever, the eruption is localized, irregular, usually on the face. Syphiloderma may be known by the history, there are small vesicles but rarely, and it is chronic. Varicella is most likely to be confounded with the smallpox, but we are generally sure after forty-eight hours. The eruption is profuse; the invasion starts in a few hours after the fever; the headache and backache are absent or slight and of short duration. We may depend much upon the history as an exposure to either disease; in varicella the pustules are not so full or round, the eruption early empties the elevations, the edges are not thick; also the vesicles soon dry in the center with a small black spot forming.

D. E. Salmon, V. D. M., chief of the Bureau of Animal Industry, Washington, D. C., reported as Chairman of the Committee on Animal Disease and Animal Food. There have been no outbreaks during the past year among the animals of America of unusual extent or manifesting any peculiar characteristics. No exotic diseases have been introduced among our live stock within this period, nor have any new problems arisen, so far as this committee have been able to ascertain, in connection with the protection of the public health from diseases affecting our domestic animals. However, there are numerous questions which have confronted practical sanitarians for years, some of which have been discussed at the previous meetings of this Association and which are still debated, misunderstood and more or less neglected by health authorities. Instead of losing interest as time goes on, some of these questions are becoming more and more urgent. We can only refer to a few subjects which the events of this year have made particularly prominent. Anthrax, tuberculosis, public abattoirs, each in turn was partially discussed; tuberculosis is causing more effort to enable us to effect its stamping out. The problems connected with the control and eradication of this disease among dairy cattle are becoming better understood, and the general plan of procedure which was outlined by your committee at the Chicago meeting is now being largely adopted. The dairymen are being encouraged and influenced in various ways to dispose of their diseased cattle and to replace them with healthy ones. The boards of health of many cities are requiring more rigid inspection of dairies and compliance with prescribed sanitary regulations by those who produce milk for consumption within the territory under their jurisdiction. In a number of the States there are State Boards which are especially charged with the duty of controlling tuberculosis. In some, if not all the New England States, regulations are in force requiring that all dairy cows brought into these States shall have been tested with tuberculin and found free from disease. Similar regulations are soon to be enforced by the authorities of Pennsylvania.

*(To be continued.)*

## PRACTICAL NOTES.

**Lotion for Anal Pruritus.**—Hyposulphite of sodium, 30 grams; phenic acid, 5 grams; glycerin, 20 grams; aq. dest., 450 grams. For external use. Apply compresses moistened with this lotion, frequently, to the anus.—Penzoldt, *Semaine Méd.* October 13.

**Formaldehyde in Burns.**—A druggist writes to the *Muench. med. Woch.*, that he has discovered formalin to be extremely effective in burns by personal experience. He accidentally poured some boiling culture bouillon over his hands, and applied at once a compress moistened with 10 per cent. formalin. In twenty minutes the pain had quite passed away and when the compress was removed not a trace of the burn was to be seen. The skin was not even red.—*N. Y. med. Woch.*, October.

**The Favorable Effect of Injections of Artificial Serum in Cholera Infantum** is confirmed by J. Loin of Brussels, who saved three severe cases, six months to three months, with 50 grams of artificial serum injected morning and night, after all other means had failed. Improvement was noticeable after the first or second injection.—*Semaine Méd.*, October 13.

**Salicylate of Soda in Serous Pleuritic Effusions.**—Poliakov reports five cases in six, cured by 2 to 4 grams a day, after having resisted the effect of repeated punctures. Three were also tuberculous. He finds that it is well tolerated if a little alkaline mineral water is given after each dose or caffein with it in case of weak heart action.—*Sem. Méd.*, October 6.

**Tetanus in Children, of Gastro-Intestinal Origin.**—1. Salicylate of bismuth, 30 centigrams; benzonaphthol, 15 centigrams; sugar q. s. for one powder. Make twelve similar powders; administer four a day. 2. Bromid of potassium, 3 grams; chloral hydrate, 1 gram; aq. dest., 100 grams; syrup of bitter orange peel, 50 grams; f. s. a. Administer three tablespoonfuls a day. For a child of 2 to 3 years.—E. Tordeus, *Semaine Méd.*, October 13.

**Formula for the Administration of Iodoform in Phthisis.**—Iodoform is generally well tolerated by phthisics; it relieves the cough, decreases expectoration and has a remarkably soothing effect on the nervous erethism. 1. Iodoform, 2 grams; tannin, 4 grams; for forty powders; two to four powders a day. This formula is for patients with a tendency to diarrhea. If there is constipation, the following is to be preferred: 2. Iodoform, 2 grams; naphthalin, 2 to 4 grams; for forty powders; two to four powders a day.—E. De Renzi, *Sem. Méd.*, September 29.

**Electrolysis in Trachoma.**—Haun recommends electrolysis after cocainization of the eye, as extremely effective and entirely painless. The patient takes the anode of a galvanic apparatus in his hand and the physician applies the sharp, delicate platinum needle cathode into the granule for five to fifteen seconds. Current 10 to 20 milliamperes. Light cases are cured in from two to three sittings, more severe in five to eight.—*Wien. Med. Presse*, No. 38.

**Massage for Postpartum Hemorrhage ex Atonia Uteri.**—Kumpf reports two cases successfully controlled after all other means had failed, by a sort of massage manipulation which he calls "zitter drückung" or tremolo pressure. He applied his hand to the abdominal wall of the patient at a right angle, between the symphysis and navel, and pressed it back against the spine with a rapid trembling motion of the fingers, afterward applying the same to the rear of the uterus when it became palpable. Contractions of the uterus were soon induced by this mechanical stimulation of the muscles and nerves and the hemorrhage promptly arrested.—*Cbl. f. Gyn.*

**Iron Beer.**—Jaworski has a beer containing iron, made at the Bukowina brewery, which he has found extremely beneficial in certain cases. The iron is readily absorbed in this form, the taste disguised, while the beverage is nutritious, containing more calories than an equal amount of milk. It is a dark bock beer, composed of 4.07 per cent. alcohol; 8.03 per cent. extracted matters; oxygen 0.21 per cent. and 0.0317 iron in the weaker form; 0.0644 in the stronger beer. The hemoglobin, number of corpuscles, and the weight increased after a few days of its use.—*Therap. Woch.*, September 26.

**Diagnostic Significance of Neuralgia in Incipient Aneurysm of the Aorta.**—Levachev has observed twenty-nine instances in which cervico occipital neuralgia accompanied aneurysm of the aorta, in 126 cases. In eight this neuralgia was uncomplicated by other nervous troubles. He therefore calls attention to this

form of neuralgia as another important indication of beginning aneurysm, in addition to the classic syndrome, and also urges caution in the treatment of neuralgias, as cold douches, mountain climbing, superalimentation, etc., accelerate the evolution of the aneurysm and increase its intensity. He has several times witnessed the fatal termination directly hastened by the treatment instituted for the neuralgia which may be the only symptom at first of the aneurysm.—Moscow Congress.

**Iodocresin or "Traumatol."**—Dr. W. Schattenmann describes this as a violet-red, amorphous, remarkably fine, bulky, odorless powder, which results from a chemic combination of cresylic acid from coal-tar cresol and iodin, containing about 54 per cent. of the latter. It is insoluble in water, acids, and alcohol, slightly in ether, but readily soluble in chloroform and strong alkalies. Laboratory experiments have demonstrated that it is not poisonous and that it possesses antiseptic properties. It is employed as a powder, crayon, plaster, gauze, vaselin, glycerin and collodion. It may be prepared as a 5 to 10 per cent. traumatol-zinc-paste, 10 per cent. traumatol-lanolin-vaselin, or 10 to 50 per cent. traumatol-chloroform. For venereal ulcers, after preliminary cleansing, it brings about speedy cure. The crayons are useful for the healing of fistulous tracts, dissolving more slowly than those made of iodoform. For genital erosions the collodion is preferred. As a powder, or with chloroform, excellent results have been obtained in syphilitic affections of the mucous membranes. For various operations performed in genito-urinary work, phimosis, buboes, gland extirpations, papillomas, warts, application of the powder, which is covered over with the collodion, is recommended. In addition to its antiseptic properties, its drying and unirritating effects are so marked that its field of usefulness embraces a considerable number of skin diseases. The results obtained on seventy-five patients who were treated by this remedy, used alone, show conclusively that in it we have a valuable addition to our therapeutic resources.—*Therapeutische Monatshefte.*

**A New Operation for Malignant Disease of the Testicle.**—Stinson (*Medical Record*, Oct. 30, 1897, p. 623) recommends the following mode of procedure in the treatment of malignant disease of the testicle: An incision is made from the external inguinal ring, downward and inward to the beginning of the rhaphe of the scrotum, and following the sulcus between the scrotum and the penis. It is then carried downward and backward, parallel with and external to the rhaphe of the scrotum, and terminates at the scrotoperineal junction. The incision divides the tissues of the scrotum. A second incision, which is slightly curved, is made from the external ring downward, following the sulcus between the scrotum and the thigh and the perineum. It terminates by joining the first incision at the scrotoperineal junction. This also divides the layers which form the scrotum. The scrotum, the testicle and its coverings, the median rhaphe, the septum scroti, etc., are as a mass freed from all their attachments, except to the cord, up to the external inguinal ring. Any masses of fat, glands, adhesions, etc., should also be freely removed with these structures. A third incision is made parallel with, and about one-half an inch above, Poupart's ligament, from the external ring to one-half an inch above the internal inguinal ring. It divides the structures superficial to the aponeurosis of the external oblique. The latter is well exposed and divided in the direction of its fibers to about one half an inch above the internal ring. The cut edges are lifted and freed from the structures beneath, so as to expose the cord, etc., up to the internal ring. The cord, etc., are separated from the surroundings, from the external ring to high up within the internal ring, care being taken also to remove freely all mass of fat, glands, adhesions, etc., in the rings and canal. Moderate traction is made on the cord so as to draw it out as far as possible from the internal ring, and it is secured high up within the internal ring with a clamp. Division should be made below it. Any bleeding vessel or vessels are ligated separately with fine catgut. The raw surface of the stump is covered over by bringing together with continuous sutures of catgut the cut edges of the external coat of the cord. When the clamp is removed the sutured edges of the cord at once slip back into the abdomen. The cut edges of the aponeurosis of the external oblique and the pillars of the external inguinal ring are brought together with continuous sutures of chromicized tendon or chromicized catgut. The flap of skin covering the inguinal glands is dissected downward and all of the inguinal glands and fat removed. If the glands are adherent to the skin, the latter is also freely removed. The flap is now replaced and the cut edges of the skin of the groin and the scrotum are united with fine silk sutures, without drainage. A small strip of mercuric chlorid gauze may be inserted for a short distance in the lower angle of the scrotal wound and left in place for a day or so. All hemorrhage should be arrested before the wound is closed.

**Analgesic and Antiseptic Uses of Thiol.**—This substance, which is a synthetic ichthyol, and has been before the profession about ten years, was first exploited in dermatologic practice, and later had its part in gynecic work, but comparatively little has been heard from it in late years. A German physician, Wirz of Kaisersech, has employed thiol in place of ichthyol, and has had ample opportunity to convince himself of its excellent qualities in a somewhat wide range of cases. As a substitute for ichthyol it seems especially welcome when used on the face, as it is odorless. Patients who could not bear the smell of ichthyol, improved under the use of thiol. In inflamed conditions the analgesic properties of thiol surprised him. It can be used, he says, in inflammations of every description. Infiltrations are resorbed without the formation of pus, making incision unnecessary. In severe carbuncles, after removal of the pus, thiol allayed inflammation when applied around the wound on the infiltrated parts and pain ceased entirely. This was observed in all the inflammatory processes where thiol was used after the removal of the pus. Lymphangitis, even phlegmons caused by panaris, insect bite, and other causes, quickly disappeared under thiol treatment. Inflammation of the face caused by decayed teeth, erysipelatous infiltration of the scalp and face, and severe infiltration of the neck, which took on a serious aspect owing to edema of the glottis, gradually disappeared under constant application of the thiol. In a case of general furunculosis in a child, he directed painting thiol over every furuncle and soon a complete cure resulted. The best results, he says, are obtained with liquid thiol as supplied by the manufacturers, not by that prepared from powdered thiol with the addition of water. In five cases of parametritis he has good results with plugs soaked in thiol and distilled water, equal parts. He also ordered applications of thiol on the abdomen during the night. During the day hot linseed poultices were used. In a severe case of parametritis and perimetritis accompanied by great abdominal pain and high temperature, he had better results with ichthyol, as applications of thiol did not completely allay the pain, while ichthyol induced complete recovery. Cases of otitis externa he has treated with thiol plugs with complete success. No other remedy has rendered him such good service against severe pains in the back after influenza. Patients experienced lasting relief by rubbing thiol over the whole vertebral column. Patients with emphysema, accompanied by marked dyspnea, were relieved as soon as thiol was rubbed on the chest. Pains in the muscles of the thorax ceased, expectoration became easy, and dyspnea and catarrh improved. In pleuritis, as well as croupous pneumonia, thiol was of great service, either alone or together with veratrin and potassium iodid ointment, against pain in the chest. Several patients said that this ointment benefited their condition more than caffein, camphor, hematogen, etc. Wirz has come to the conclusion, therefore, that we possess in thiol an agreeable substitute for ichthyol, odorless, cheap and efficient.—*New York Medical Journal.*

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SATURDAY, NOVEMBER 20, 1897.

## A DEPARTMENT OF PUBLIC HEALTH.

All the indications point to the establishment at last, in this country, of a National bureau or department of public health. The yellow fever outbreak of the current year has fortuitously and fortunately directed the attention of the people to the urgent necessity for a better organized system of National supervision over the gateways of the seaboard by which epidemic diseases gain admission. The makeshift methods of recent years, utilizing the expedients of a special bureau created for an entirely different purpose, clinical only and not sanitary in its aims, have proved to be ineffective, and the most dreaded of pestilential diseases has actually gained entrance under the very eyes and nose of the much vaunted guardian. Again, the lesson has been taught that the loss of life, the paralysis of business, commercial disaster and disturbed trade relations have footed up to millions, when as many thousands wisely expended by the responsible officers of a National establishment, charged with the protection of the public health—and with nothing else—would have made the former impossible.

Perhaps it is well that the experiment should have been tried of intrusting this work to the Marine-Hospital Service, and though the incidental loss of life and trade ruin are regrettable, the results are what might have been expected and were logically anticipated. These results were not apparent until the management of the Service became what it is today, but the miserable fiasco at Brunswick and the *laisse faire* policy at Ship Island which permitted this year's epidemic, have emphasized in a very unpleasant way not only the decadence of the Service, but how much depends on one man. When that man is fearless, able and active all goes well; when he is indolent, arrogant, tyrannical and playing for social prominence to the disregard of the best interests of his Service, then time shows the failure in no uncertain way. The function of the Marine-Hospital Service is to care for sick and injured masters, mates and sailors of the merchant and revenue marine, as that of the medical department of the United States Navy is to care for sick and injured officers, seamen and marines of the naval service; and while the naval medical officer through his foreign cruising has necessarily a wider practical acquaintance with diseases of other countries, and especially of exotic pestilences, such as yellow fever, in their native habitats, there are manifest reasons why neither the one nor the other—certainly not the Marine-Hospital Service, as at present managed—should be intrusted with the special and specific duties of a National health bureau. If for no other reason, this is inadvisable through the inevitable result of inducing the neglect or perfunctory performance of the legitimate duties for which it was constituted. This is indicated by the last annual report of the head of this bureau—a volume of over eleven hundred pages, of which less than half are devoted to bona fide marine-hospital matters. The medical officers of that service have been diverted from their professional duties at the bedside in attendance upon sick and injured merchant sailors and have been sent to foreign countries, the sum total of their observations having been anticipated by newspaper cable reports and returns from the United States consulates. Had the former been ten times as voluminous they would not have averted the inexcusable calamity, which, as the President of the American Public Health Association (Dr. HORLBECK) so eloquently pointed out, has fallen like a blight upon the southern seaboard States, and made it almost impossible for him to leave his post of duty as Health Officer of the City of Charleston, S. C., to attend the meeting of the Association which had honored him with its presidency on its silver anniversary.

The American Public Health Association "was organized in 1872 by a few public-spirited men impressed with the need of bringing together in one body the ablest sanitarians in the country for the purpose of inaugurating measures for the restriction and prevention of contagious and infectious diseases, and for the diffusion of sanitary knowledge among the people," and happily its twenty-fifth annual meeting at Philadelphia, in October, was signalized by the final report of one of its most important special committees, that on "Public Health Legislation," which under the chairmanship of Dr. HENRY P. WALCOTT, the President of the State Board of Health of Massachusetts, has for years been thoroughly and impartially considering this question of the form of legislation best adapted for the effective National sanitary safeguarding of the country. Dr.

WALCOTT'S associates in this work have been sanitary officials of long experience, men charged with the grave responsibilities of the sanitary welfare of their several States and communities, men of such wide reputation that their opinions are of influence outside those localities. That it may be generally known who and what these men are, and their recommendations be better appreciated and accepted without question, their names and offices are here appended: Dr. JAMES N. MCCORMACK, Secretary of the State Board of Health of Kentucky; Dr. JAMES D. PLUNKET, President of the State Board of Health of Tennessee; Dr. HENRY B. BAKER, Secretary of the State Board of Health of Michigan; Dr. SAMUEL R. OLIPHANT, President of the State Board of Health of Louisiana; Dr. BENJAMIN LEE, Secretary of the State Board of Health of Pennsylvania; Dr. U. O. B. WINGATE, Commissioner of Health of Milwaukee, Wis.; Dr. CHARLES O. PROBST, Secretary of the State Board of Health of Ohio; Dr. EMMANUEL P. LACHAPELLE, President of the Provincial Board of Health of Ontario; Dr. GREGORIO MENDIZABAL, the official representative of the State of Vera Cruz, Mexico; Dr. JAMES PATTERSON, Chairman of the Provincial Board of Health of Manitoba; Dr. HENRY D. HOLTON of Brattleboro, Vt., and Dr. DANIEL LEWIS, President of the State Board of Health of New York. Here are thirteen men of prominence, the majority officers of State Boards of Health, who have held their offices for years through political changes of administration, from every quarter of the United States, from Canada and Mexico, from the actual seat of the prevailing epidemic, uniting in the opinion and the earnest recommendation, "that there shall be established a *Department of Public Health*, the duties of which shall be to collect and diffuse information upon matters affecting the public health, including statistics of sickness and mortality in the several States and Territories; the investigation by experimental and other methods of the causes and means of prevention of disease; the collection of information with regard to the prevalence of infections, contagious and epidemic diseases both in this and other countries; also, the causative and curative influences of climate upon the same; the publication of the information thus obtained in a weekly bulletin; the preparation of rules and regulations for securing the best sanitary condition of vessels from foreign ports and for prevention of the introduction of infectious diseases into the United States and their spread from one State into another; that this Department of Public Health shall be under the control and management of a *Commissioner of Public Health*, who shall be appointed by the President by and with the consent of the Senate, who shall hold his office for six years, shall be a regularly educated physician of at least ten years' experience, learned in the practice of medicine, in sanitary science and member of one or more reputable sanitary or medical associations in the United States; and that the Commissioner of Public Health shall semi-annually and at such other time, as he may designate, call to meet in the City of Washington, D. C., an *advisory council* to be composed of the secretary or executive officer of each State and Territorial Board of Health, and an officer learned in the law, detailed by the Attorney-General of the United States from the Department of Justice. A Department of Public Health, controlled and managed by a Commissioner of Public Health, with an advisory council of executive officers of each State and Territorial Board of Health are the essential features of the scheme of law, which was reported to and accepted by the American Public Health Association and ordered to be transmitted to the Congress of the United States as its voice and opinion. This action now unites it with the AMERICAN MEDICAL ASSOCIATION. The elaboration of the scheme may be safely trusted to the National law-makers. A feeble protest against this reference was made at the meeting by the representative of the Marine-Hospital Service on the ground that it was inappropriate for an Association composed in part of Canadian and Mexican members to unite in a proposition concerning only the United States, but the individual protesting was reminded that he himself had endeavored, only a year ago, at Buffalo, to obtain from this same tripartite body the passage of a resolution recommending that the U. S. Marine Hospital Service should have its powers so enlarged as to constitute *it* the National Board of Health of the United States, and that he had complained in an official report because, as he alleged, a member of the Executive Committee had taken it upon himself to forestall its adoption. The partisan spirit exhibited in this querulous objection is additional reason why a Department of Public Health should be a Commissioner's Bureau independent of any other existing organization, with intimate relations with the State Boards of Health—harmonizing, supplementing and co-operating with them instead of subverting, antagonizing or ignoring them. A health department of this kind is the great immediate National need and the Congress should no longer delay to enact it, in view of the support it has received from State organizations, north and south, and from the great body of representative sanitarians of the country. The authority invested in the General Superintendent of Quarantine of the Dominion of Canada, Dr. MONTIZAMBERT and in the *Consejo Superior de Salubridad* (Superior Council of Health) of the Republic of Mexico, is a practical exemplification of what can be done and ought to be done in the United States. Our neighbors upon the north and south, have the right to expect from us an effective organization with which they can co-operate, and the modest and unobtrusive indorsement given it by their representatives in the American Public Health Association, which boasts that it is truly American in that it embraces in fraternal membership the three great nationalities of North America is welcome and timely.

## A NAVAL FIELD HOSPITAL.

A quarter of a century ago this country had a military strength second to none of the armed nations of Europe. It numbered its veteran soldiers not by regiments, but by corps of twenty and twenty-five thousand men, and it was well in the advance in all matters pertaining to warfare, and particularly in the arrangements for the care of the wounded. The ambulance system organized by LETTERMAN and perfected by subsequent experience in the field became a model for the armies of the world. It gave first aid to the wounded, brought them promptly from the fighting line to the field hospitals where all primary operations were performed, and dispatched them to the base of supplies, whence they were transported for further care to the general hospitals. In a word, the Medical Department of the Army was able to deal satisfactorily with all the probabilities of war as then carried on.

But now many medical officers consider that the developments in ordnance which have armed troops with rapid fire, long range and small caliber firearms will render the removal of the wounded from the field an impossibility until the storm of battle has ceased; that an ambulance organization such as operated so successfully during the last two years of our civil war would be swept from the field if it attempted to reach the line of battle during the progress of active hostilities, and that some change must be made in organization and methods if the wounded are to receive first aid and field hospital treatment shortly after they fall. We, however, do not take this view of the subject. Battles are not fought on the level where the long range bullet has sweep. In the wars of the proximate future the first aid stations of the Army Hospital Corps will be found behind the shelter nearest to the line of fire.

But the changes that have taken place in the conditions of naval warfare during this third of a century are infinitely greater than those affecting the land forces. Naval conditions have been changed, not only by improvements in ordnance, but by the efforts of naval architects to meet these changes. Such protection against the improved ordnance of today has been given to the warship and her crew as the knights of old found in their armor against the arrow and pike of the rank and file, and the lance and sword of their knightly opponents. The result has been to transform the ship of the past into a marine engine of war, and in effecting this all the conditions on board have undergone a radical change. Formerly, when a man was injured at his gun, he was carried below and the whole surgical staff was immediately, if necessary, at his service. In army parlance he was brought to the field hospital. The wounded sailor had the advantage in those days, because he received immediately that care which the soldier obtained only after an exhausting ambulance ride from the front to the field hospital.

The battleship of the present day is the equivalent of an army line of battle; and while she may afford, here and there, sheltered places for first aid to the wounded, there is no provision within her armored sides for a field hospital. This revolution in the construction of the battleship necessitates a revolution in the methods of the Navy Medical Department, and our naval medical officers have already given their minds to the accomplishment of this object. At the International Medical Congress at Moscow, Surgeon-General VAN REYPEN presented plans for an ambulance ship to meet the necessities of naval warfare under present conditions; and his proposition has all the more interest, because should this country become involved in war with a foreign power, outside of our neighbors on the north and south, the Navy, not the Army, would have to uphold the flag. His proposition is that with every squadron of battleships there should be an ambulance or hospital-ship, flying the flag of the Geneva Convention, and exposed, therefore, only to accidental injury. His plans for this floating field hospital are excellent. Everything needful appears to have been considered and provided for, and every cubic foot of space to have been utilized to the best advantage. On the upper deck are rooms for convalescent officers and men and for specially serious or isolation cases, with the galley, laundry, wash-room, drying room, lamp room, closets and bath rooms for officers and men, and the offices of the senior medical officer and his executive officer. Dumb waiters go from the galley to the diet kitchens on the decks below. This deck carries four steam launches and four barges, each of the latter capable of bringing off twelve wounded men. The launches and barges are the ambulances of this marine field hospital. Amidship on the berth deck is the operating room. This is lighted from the sides by air ports and from above by a skylight, for the upper deck does not extend over it. On either side of the operating room is an elevator large enough to hold a cot, and run from the upper to the lower deck by electricity. A patient can easily be hoisted from the barge alongside, lowered to the operating room, and carried thence to a cot on the berth deck or lowered to one on the deck below. The transfer is effected by means of an overhead trolley which runs from the operating room and elevators to the distal end of the wards. Below in the engine room, space is provided for an ice machine and cold storage room, a disinfecting chamber, and ample store-rooms for all departments of the ship. The vessel can accommodate comfortably 330 patients, with berthing space for the crew, including its complement of medical officers and nurses or hospital-corps men. To cite from Surgeon-General VAN REYPEN'S paper:

"So soon as the action is over the launch should tow its barge alongside a vessel that has been in

action, and the wounded should be hoisted out into the barge by means of the apparatus already described; it should then steam with all despatch to the ambulance ship, unload its human freight and speed away again on its mission of humanity. In no other way could wounded men be cared for, or a fighting vessel be more speedily disencumbered and placed again in readiness for battle."

Surgeon-General VAN REYPEN will urge an appropriation for the construction of this ambulance ship, and we trust that he will be as successful in his effort to materialize her as he has been in his work of evolving her from his inner consciousness and ripe experience. We commend his proposition to the Secretary of the Navy and to Congress.

## THE ILLINOIS SUPREME COURT DECISION ON EXPERT TESTIMONY.

Two recent occurrences have brought the perennial subject of medical expert testimony again prominently before the profession. One is the decision of the Supreme Court of Illinois placing experts on the same plane, as regards compensation, as witnesses as to facts; and the other, the recent very striking exhibition of expert testimony in a very noted trial for murder. The first of these suggests, more than ever, the need of legislation in this regard and should excite the interest of all professional men who are liable to have their special knowledge, which is their capital, demanded from them without compensation. It is not the medical profession alone that is injured by this judge-made law, and this fact ought to secure for a reasonable proposed statute more general support than might be the case were such a measure demanded only as a prevention of the scandal of a too notable disagreement among doctors with the inevitable popular misconceptions and charges of venality. The failure of previous attempts ought not to be any discouragement to new ones, with the reasons and necessity for such legislation thus reinforced, and it is to be hoped that something may be accomplished in Illinois like what is already achieved, or in fair prospect of being so, in some other States of our Union.

While this decision is for the present final, as giving the legal status of expert testimony in Illinois, it may be questioned whether the State can in future cases derive any very positive advantage from its power to compel those possessing special knowledge to give it on demand without due compensation. No expert will be likely to give his time for consultation without charge and he can not be legally forced to do so, while a prudent counsel will hardly call in the assistance of an expert in a doubtful case without knowing what sort of an opinion is likely to be given. If the State wishes the services of experts hereafter, under this interpretation of the law, in a criminal case, or a private individual or a corporation requires them, they will be likely to have to pay for them, if not for the testimony in court, at least for the needed preliminary consultation, and the same objectionable possibilities exist now as before the promulgation of the Supreme Court decision. If anything, the State is placed rather at a disadvantage by it, for it will probably not be so easy as heretofore to have authorization for the employment of competent experts in questions requiring special knowledge, while private parties or corporations will be untrammeled in this regard.

If the Supreme Court's decision will in any way prevent the unfortunate exhibitions of experts contradicting each other before courts and juries and thus discrediting themselves, their profession and what ought to be an efficient aid to justice, it would be less regrettable, but this is hardly probable. If prosecuting attorneys would always be satisfied with bringing out the actual facts and would never make the conviction of the accused the primary aim, they could call in acknowledged experts without prior consultation and under this decision almost without expense. The real effect, however, will probably be that the defense, having a free hand, will call in its authorities and the State will either have to let their testimony go uncontradicted or employ its counter experts. In civil cases the conditions will remain much as they are at present, and juries and judges will be confused with opposing testimony. That there will be any improvement over the conditions that have existed is certainly very doubtful, and the need of legislation is not less in the interest of the public and the administration of justice than in that of justice to the members of our own and other professions who are called on to appear as witnesses on matters of special knowledge before the courts.

It is to be hoped that the medical profession generally, and all others who are interested in the matter, will combine to use their influence for such legislation as is required. It is needed not only in justice to the experts themselves, but as much or even more than ever in the interest of the administration of justice and to prevent what have been practically scandals in our own and other skilled professions. If the Illinois decision will have for its effect the hastening of this desirable result, it will have rendered indirectly a valuable service in a good cause, though that was not its obvious intention.

## DENVER AS A PLACE OF MEETING.

To some extent the success of any particular meeting of the AMERICAN MEDICAL ASSOCIATION depends upon the place at which it is held; yet not upon any one characteristic of the place. To make a notably successful meeting many influences must contribute. Each can help toward the result; yet the result de-

pends more upon the general average of the work done along several lines than upon that lying in any single direction. Take the simple factor of geographic location, particularly with relation to the bulk of the membership of the ASSOCIATION. It would seem very reasonable to suppose that, other things being equal, the meeting held nearest the center of membership would attract the largest number. This is probably generally thought of as the reason why the last meeting was so largely attended. But prior to that the meeting at which there was the largest attendance was held in St. Paul, the point farthest removed from the center of membership of the ASSOCIATION, with the exception of San Francisco, at which any meeting had been held.

It must be borne in mind that while a meeting in the East may have a larger membership to draw upon, a meeting at some western city is certain to draw a larger proportion of possible members within easy reach of it. If, as is the case for next year, the meeting is to be held in the only city of an extensive region in which there is any chance of a meeting being held for many years, it is certain that the physicians of that region will make a much greater effort to attend the meeting than if they could look for its return to some neighboring State within a comparatively short period.

It is also true that much of the success of a meeting depends on the wisdom and energy of the local profession, and on the promptness with which they undertake the work of preparation; and in this respect probably Denver could not be excelled by any city in the country. Already the plans of the Committee on Arrangements are more completely developed, and carried farther into execution than they ever have been before at such an early period. Something of the same disposition to promptly undertake the work laid upon them has been shown by many of the Section officers, with whom also the success of the meeting largely rests; and the list of these officers shows that the arrangement for the Section work for the coming year are in hands as competent as they ever have been in former years.

But, doubtless the most important factor in determining the attendance and success of the meeting of the ASSOCIATION for 1898, will be the special attractions of the place of meeting. While Denver is no farther from the center of the Mississippi Valley than one of our eastern coast cities, those making the trip from the East will be brought together at a few points of departure, Chicago, St. Louis, Kansas City and Omaha; and thence will make the last day's journey, generally the most tiresome part of a long railroad trip, in special trains with the best possible traveling companions, their fellow members of the ASSOCIATION and their families. A long journey made alone may, as we all know, be very tiresome, but a long journey made in company with brother physicians whom we have not seen for a year, or have previously known only by reputation, may be the most delightful and memorable occasion. The specialist can discuss with his brother specialist the minute subdivision of medicine in which they are interested, without interruption, as he could not do at any other time; the medical politician will have the ideal opportunity to exercise his powers in looking after the future welfare of the ASSOCIATION as he sees it; and the general practitioner can live in an atmosphere of sympathy and appreciation completely denied to him during his days of isolated work. The trip is across no deserts like those encountered on the way to San Francisco, but is, at that time of the year, through the most pleasant surroundings and under the most favorable traveling conditions.

It should be remembered that while Denver is not one of the largest of American cities, it has a population greater than that of Newport, Nashville and Atlanta, where recent meetings have been held, added together; and it is particularly well prepared to accommodate large numbers of visitors. Then the professional conscience which does not allow many physicians to take any vacation, unless it serves some distinct purpose of professional improvement, can be entirely satisfied about the Denver trip. While it may not offer the multitudinous clinics of Philadelphia, it will include a study in climatology worth any amount of reading on the subject, a subject which the mass of American physicians greatly need to better understand and appreciate. Many striking observations will be forced upon the attention of even the most careless by a few days residence one mile above sea-level. The general characters of topography and climate of a great section of our country, destined to include many of its most important sanitariums before another generation passes, can be observed there.

The Western hospitality, which seems to culminate in Colorado, will confer not only great personal pleasure, but also great and general professional benefit by the series of excursions it will offer to various parts of Colorado and adjoining States. On some of these a few hours' travel will double or even treble the elevation above sea-level, and will display changes of corresponding extent in the physical features of the country. Probably every physician in the East has sometimes wished for definite, personal knowledge that would enable him to judge of the enthusiastic claims made for Colorado as a health resort; and such knowledge would necessarily improve his judgment with regard to health resorts in general. He will find that the 1898 meeting of the ASSOCIATION in Denver will offer by far the best opportunity for acquiring that desired practical acquaintance with the facts.

Aside from numbers in attendance, the real satisfaction and permanent impression of a meeting de-

pends largely upon the local arrangements. This, of course, is not guaranteed by the geographic location of the 1898 meeting; but it is by the energy of the Denver profession and the experience of the city in the entertaining of similar gatherings in the past. Arrangements for very large meetings held in Denver in the last few years indicate that the local arrangements for the AMERICAN MEDICAL ASSOCIATION will be as nearly perfect as it would be possible to make them in any city in the country. Whether the purpose entertained by the Committee of Arrangements, to make the Denver meeting larger than the one recently held in Philadelphia, shall be achieved or not, it is pretty sure to be a very successful meeting, and one that will add largely to the number of members of the ASSOCIATION. Those who, through failure to recognize this, or neglect to make the necessary arrangements to attend it, fail to participate in its advantages, will find their non-attendance a cause for future regret.

## CORRESPONDENCE.

### Recurrent Diphtheria.

PHILADELPHIA, Nov. 10, 1897.

*To the Editor*:—I wish to report this case of "Recurrent Diphtheria," as it is one more link that proves that the protective value of antitoxin is only of short duration and further that there is considerable danger in placing patients that are convalescent from diphtheria in close contact with new cases of the same disease. Jennie T., aged 6 years, who gave a history of being sick at home for two days with diphtheritic croup, was admitted to the Municipal Hospital May 21, 1897. Her respirations were so laborious at that time that it was thought advisable to do intubation. After the operation the child became quiet and the respirations were 28 per minute, deep and regular in character. One thousand units of the Phila delphia Board of Health antitoxin was given that evening and the same dose repeated next day. An examination of the throat showed only a mere trace of exudate on the tonsils, although a culture made from her fauces showed the presence of the Klebs-Loeffler bacilli. On the third day after the injection of antitoxin, or the fifth day of the disease, a fine bright scarlatinal rash appeared, extending over the entire body. Her temperature also jumped from 100 to 103 degrees F. The diagnosis of scarlet fever having been made she was removed to the building used for patients suffering with both diseases. The child did nicely and on the eleventh day of the disease, after having worn the tube nine days, she coughed it up at 3 A.M. It was not necessary to reintroduce it, and she was convalescent on June 9, after a period of three weeks' illness. She had been out of bed for nearly two months and had not been sent home as she was still desquamating; when, on July 29, her temperature rose from the normal to 104 degrees F., and both tonsils were found to be thickly covered with a yel lowish black exudate. Cultures made from this exudate showed the presence of Klebs-Loeffler bacilli. She also started to breathe heavily, which gradually got worse during the next two days. Two or three consultations were held upon the advisability of reintroducing a tube, but upon each occa sion it was deemed best to wait. A complication which made this second attack a grave one was severe epistaxis, during the paroxysms of coughing. After the fourth day of her second attack the croupy symptoms began to improve, and intubation was not necessary. The exudate had cleared up rapidly under the local influence of peroxid of hydrogen and internal administration of iron and bichlorid, and she was again convalescent on the seventeenth day of her second attack. She had hardly been out of bed a week and we were about to send her home, when on August 20, she developed her third distinct attack of diphtheria. The exudate extended over and covered the soft and hard palates and was very thick. There was no exudate on the tonsils, uvula or wall of the pharaynx. The culture was positive. She was only confined to bed a week with this last attack, when she made a complete recovery and was discharged. E. L. DRAKE, M.D.

### Tea Drinking.

NEW YORK CITY, Nov. 1, 1897.

*To the Editor*:—Admitting all that is contained in your editorial, as to the evils of tea drinking, let me say that the cup that cheers, contains blessings from a medical standpoint, which one only can see in a country where the tea house has taken the place of the saloon. Japan is a typhoid country and a cholera country; the drinking of hot water is, for the Japanese, a sanitary necessity; but who would ever have consented to indulge in such a beverage even when prescribed by a Budhist priest, if the water had not been pleasantly flavored? Happily for them, tea drinking was introduced in the eighth or ninth century, and they have had time to become perfectly infatuated with it.

Coffee was unknown until introduced by Europeans, in the sixteenth century by the Dutch, from Java. But it never made any headway; nations have their tastes like individuals, about which there can be no dispute. The "Japs" want something every ten minutes, and coffee could not be enjoyed in that way. Mark that in every one of those tiny periods of ten minutes, a fresh cup is brewed. The hot water kettle is forever on the charcoal stove, at the man's or woman's elbow. The individual does not brew an enormous quantum of the delicate beverage, enough to satisfy father, mother, children and the stranger within the gate; he culls from his cannister a simple pinch of tea leaves, drops it into his diminutive cup (holding perhaps an ounce) and pours his boiling water on it. As soon as the water shows color he drinks it. He may drink a quart or two in a day, for wherever he goes, visiting or shopping, the cheering cup is surely offered to him. It has been observed, with shocked amazement by foreigners in Japan, that a native will, without the least embarrassment, excuse himself, even to the ladies, and ask for the water closet. The tea leaves him no rest.

Of course a penalty has to be paid for these excesses, rather two penalties. The high class, who drink the finer sorts, suffer from nervous disorders; the lower class, to whom the coarser brands are left, are subject to those dyspeptic troubles deplored in your article.

Tea drinking has not only kept down typhoid fever and cholera contagion, it has also obviated alcoholic intemperance. There is no saloon in Japan, except the tea saloon. Perhaps the absence of pauperism is to be ascribed to that. It is to me a puzzling question whether tea guzzling would not do some good even in this white country, in spite of thein, caffein and tannin. ALBERT S. ASHMEAD, M.D.

### Treatment of Snake Bite.

SIERRA MOJADA, MEXICO, Nov. 8, 1897.

*To the Editor*:—In the JOURNAL of October 30 J. G. Tuten, M.D., Jesup, Ga., gives a lengthy description of the treatment of a snake bite. The doctor's patient was long suffering and that he was kind is evident from the fact that he didn't change doctors. The grave symptoms, horrible suffering and extensive sloughing were the result of the absurd treatment

and not of the poison of the snake bite. The bite of the rattlesnake does sometimes prove fatal, but if treated properly, very rarely. The tourniquet or ligation of an extremity is always bad. A word as to my method of treatment, and I have treated more than two dozen in the last ten years with no deaths. If there is very recent scarification and sucking of the wound, then I make free incisions and immerse the part in warm water to promote bleeding; then apply gauze wrung out of hot antiseptic solutions on absorbent cotton with moist heat to all the swollen portion; whisky frequently repeated in stimulating doses, no more. Digitalis is sometimes necessary and is very good, when indicated. Free catharsis is produced with calomel and milk diet, or other nutritious articles of easy digestion ordered. W. Q. MARSH, M.D.

## A Question of Medical Ethics.

ATLANTIC, IOWA, Nov. 9, 1897.

*To the Editor:*—The great medical charities of this country are a credit to the profession and others whose gratuitous services make their existence possible; and no medical man will deny that the good done by these institutions is well-nigh incalculable.

That abuses of the system have been and are constantly being practiced no one will deny, and the periodic complaints from those physicians who live near the large dispensaries are familiar to all who read the current medical journals.

That abuses of medical charities had begun to extend into the country was not suspected by me until lately, when there fell under my observation something that I think needs attention from that portion of the profession who believe that quackish methods are not admissible even in the practice of those who are wont to assume that they are exempt from the operation of the time honored "Code of Ethics." A certain sanitarium whose advertisement can be seen in nearly all the leading medical journals is, as is well known, under the control and guidance of a certain religious organization, and has as its chief medical officer a man who is a prolific writer, and is always prominent on the floor at the meetings of the AMERICAN MEDICAL ASSOCIATION. I find that it is the universal habit of the ministers who preach the gospel as viewed by this sect, to go among the people in their vicinity and solicit cases for this institution, without regard to the circumstances; this is done on the ostensible ground that trained nursing and superior medical skill can be obtained at a far less rate than can be obtained at home. One case that came under observation was that of a man suffering from a large appendiceal abscess, who performed a journey on the cars of over 650 miles and was operated on, making a slow recovery from an intestinal fistula; that he did not rupture the abscess *en route* and die of peritonitis is due wholly to good luck. Two cases have recently come under my observation in which this same minister induced two women to discharge their local physician and repair to this sanitarium for the purpose of having celiotomy done. The chief of the staff of this institution must know of these facts, for he requires the ministers to have the patients ask their attending physicians for a written "diagnosis" of the case before agreeing to admit them; the other binding clause of the bargain is that they pay if they can, and if unable to do this, promise to do so when they can. Patients who are abundantly able to pay are thus taken and worthy men robbed of cases from which they could collect a legitimate fee, that the sanitarium may get the hospital fee, arrangement for which must always be made. If this is legitimate practice of medicine, the country practitioners want to know it; and if it is not, let us insist that those who are a party to this sort of thing take their place among the itinerants, and not contaminate our medical meetings with their presence. Yours very fraternally,

FRANK W. PORTERFIELD, M.D.

## National Medical Education.

BOISE, IDAHO, Nov. 10, 1897.

*To the Editor:*—In the article on "National Medical Education" by Dr. Greeley in the JOURNAL, October 23, someone is quoted as stating that "the effort of the State Society to establish a State Board of Examiners was defeated by the quacks, but this winter will see such a bill passed"; this in reference to Idaho.

I am proud to say that the above quoted prediction was verified on March 12, 1897, and Idaho now has in operation a mixed board of medical examiners, and the act under which this board is operating provides that the person wishing to take up practice in Idaho must possess diploma from a recognized school, and pass a satisfactory examination before this board. This provision is met by applicants receiving a marking of at least 75 per cent. on all questions asked. The examination is written, and comprises papers on some fourteen subjects. At the first examination held by the board 50 per cent. failed to pass. This Act of March 12, 1897, is now being attacked in the courts by some who have felt the weight of its provisions, as administered by this Board, and time alone will determine whether the Act as passed by the legislature of 1896–97, will pass muster in the supreme court of the State.

Very truly yours, C. L. SWEET, M.D.,
Secretary Idaho State Board Medical Examiners.

## Department of Public Health Bill.

CHICAGO, Nov. 10, 1897.

*To the Editor:*—Will you kindly oblige the undersigned by mailing to my address not less than twenty copies of the Bill looking to the establishment of a Department of Public Health, as I propose to do some *more* missionary work in that direction among our National legislators ere the convening of Congress next month.

The editorial on this subject in the November 6 issue of our JOURNAL was most timely, and should elicit renewed interest in the profession everywhere.

I trust the enterprising physicians of the United States, to the number of 100,000, will awake to the necessities of this important piece of legislation, and arouse their Representatives and Senators in both Houses of our Government to renew their interest in this matter for the welfare of this Government and for all her peoples. Very sincerely yours,

LISTON H. MONTGOMERY, M.D.

A member from Illinois on the Special Committee of the AMERICAN MEDICAL ASSOCIATION on Department of Public Health.

## Edema Universalis?

CHICAGO, Nov. 13, 1897.

*To the Editor:*— Med. Dr. Gustavus M. Blech desires to know, in the last number of the JOURNAL, whether a certain case observed by him is justly called by him "edema universalis?" Certainly not. It should be called "edema universa*le*." The meager description offered allows no definite diagnosis, but it seems probable that the edema was due to "sclerema neonatorum." JOSEPH ZEISLER, M.D.

## License in Germany?

ROLLA, MO., Nov. 13, 1897.

*To the Editor:*—Will some reader of the JOURNAL give information concerning the laws of Germany in regard to American physicians who wish to locate and practice there? What is required of a graduate of American medical schools, in order to obtain license to practice? A READER OF THE JOURNAL.

Let us have a Department of Public Health!

# BOOK NOTICES.

**Traumatic Injuries of the Brain and its Membranes;** With a special study of pistol shot wounds of the head in their medico-legal and surgical relations. By CHARLES PHELPS, M.D., with forty-nine illustrations; pages 582. D. Appleton & Co., New York: 1897.

This work is a concise and systematic treatise on that division of brain surgery arising from injuries of the brain through external violence, and has been based almost exclusively on the observation of five hundred consecutive cases of recent occurrence. Although the cases were so numerous, it seems they were incomplete only in the illustration of secondary pyogenic infection, which is naturally a tribute to the skill of the surgeons in charge of the cases, inasmuch as they were kept from infection. This clinical deficiency has been supplied by excerpts from Macewen's work on inflammations of the membranes of the brain and spinal cord, with the permission of that gentleman. We have no hesitation in saying that it is the most complete work on this division of brain surgery which has yet appeared in America. We therefore extremely regret to see that the book has been published without an index. Although the table of contents is unusually full, yet it is a great defect, and one which in these days of cataloguing, indexing and tabulation, should not have been permitted. The paper is excellent; the illustrations are fine, and the work will remain for a long time a very valuable book of reference on this subject.

**Lectures on the Malarial Fevers.** By WILLIAM S. THAYER, M.D. Pages 326. New York: D. Appleton & Co. 1897.

This work consists of nine lectures with three illustrative charts. The lectures cover the ground of the history of the development of our knowledge concerning the pathogenic agent of the malarial fevers; methods of examination of the blood; description of the hemocytozoa of malaria; general conditions under which malarial fevers prevail; clinical description; masked malarial infections; conditions of the urine in malarial fever; sequelæ and complications; morbid anatomy; general pathology, diagnosis, prognosis, treatment and prophylaxis.

The author, speaking from experimental evidence, decides against the possibility of infection by drinking water, and as a means of prophylaxis recommends that one should avoid exposure at night and damp or marshy districts. People should choose sleeping apartments in an upper story of the house and always sleep under a mosquito net, and that small doses of quinin taken daily are very efficacious. These lectures are extremely valuable for reference.

**Incompatibilities in Prescription.** For Students in Pharmacy and Medicine and Practicing Pharmacists and Physicians. By EDSEL A. RUDDIMAN, PH.M., M.D. First Edition, pp. 264. New York: John Wiley & Sons. London: Shipman & Hall, Limited. 1897. Price $2.

Every druggist knows that he is sadly in need of the knowl edge contained in works of this kind, and this volume supplies the information needed concisely and thoroughly. The articles are arranged alphabetically, which renders an index on incompatibles less necessary than in most works. They are here given without comment other than that necessary to properly classify and arrange them. This is one of the most important divisions of chemistry, and no student or young practitioner can very well afford to be without this book.

**A Practical Treatise on Sexual Disorders of the Male and Female.** By ROBERT W. TAYLOR, A.M., M.D.; with seventy-three illustrations and eight plates in color and monotone. Lea Bros. and Co. New York and Philadelphia. 1897. Pages 451.

The aim of the author of this volume, says Dr. Taylor, "has been to portray the various forms of sexual disorders in the male on the basis of advanced knowledge of the anatomy, physiology and pathology of the various portions of the sexual sphere." The author points out that the failure of antecedent treatises on the subject to furnish practical information, has been due to the fact that the mode of certain neuroses and the symptoms of sexual debility, termed functional disturbances, so over-mastered the minds of writers that some "unimportant points" were unduly magnified or wrongly presented.

The great experience of Dr. Taylor in the treatment of affections of this nature, and his experience as an author, make his opinions of immense value; hence we can not too highly commend to the general practicing physician and surgeon the perusal of this work and its addition to the library.

**A Text-Book of the Practice of Medicine.** By J. M. ANDERS, M.D., Ph.D., LL.D. Illustrated. Philadelphia: W. B. Saunders. 1898. Price, $5.50 net; pages 1287.

This work is thoroughly modern in all respects. The author has given preference to modern orthography and terminology, and wherever dosage is stated has used the metric equivalents. It is, however, not a mere translation, but in all instances in which this would involve an important difference in quantity the exact decimal figures are given. Current medical literature has been utilized in this contribution.

The book covers infectious diseases and constitutional diseases; diseases of the blood and ductless glands; diseases of the respiratory system; diseases of the urinary system; diseases of the nervous system; diseases of muscles; the intoxications, and the animal parasitic diseases.

Special attention has been given to diagnosis; and the work is to be commended. An unusually full index completes the volume.

**True to Themselves;** A Psychological Study. By ALEXANDER J. C. SKENE, M.D., LL.D. F. T. Neeley, Publisher. London and New York: 1897.

This novel by Dr. Skene is so extremely advanced in telepathy and certain phases of sociology, that it is difficult to review it from that standpoint, without criticism which we would very much dislike to make; but from the standpoint of a story it is romantic, entertaining and interesting. Dr. Skene has written a remarkable novel, and has introduced some original characters into the book, as Dr. Douglas, one who followed the usual career of those whom the gods love; that is to say, he died young. He was so wonderfully good as to constitute an ideal character. The female characters in the book are women of exceptional purity, but some of them, especially Mrs. St. Clair, would be an almost impossible reality. However, in the favorite dialect of Francie, it was a braw thocht that mad them.

**Therapeutics, its Principles and Practice;** a Work on Medical Agencies, Drugs and Poisons, with Especial Reference to the Relations Between Physiology and Clinical Medicine. By H. C. WOOD, M.D., LL.D. Tenth Edition; thoroughly revised. Philadelphia: J. B. Lippincott Company. 1897 Pages 1033.

The fact that Professor Wood's book has reached its tenth edition is sufficient evidence of its popularity and of the high appreciation of the physician and students who have depended upon it for their knowledge of therapeutics. It is to be regretted that this edition still retains the old system of weights and measures. The large number of new remedies that have been introduced since the last revision of the Pharmacopeia and the toxins and antitoxins have made it necessary that every work on therapeutics, aiming to be at all complete, should contain an account of them. These have been added in this edition, so that the work has been brought down to the latest date possible.

**Transactions of the Chicago Pathological Society.** December, 1896 to April, 1897. Volume II, American Medical Association Press.

This volume of Transactions of this flourishing Society is an improvement on its predecessor, not only in style and arrangement, but in the material. The papers that are contained in the volume have been published in this JOURNAL from time to

time, and most of the JOURNAL readers are familiar with them; but they are here together and preserved in permanent form of Transactions and collectively represent a very high plane of medical literature. Pathologic cases are always instructive, and the observer of today may turn to his Monroe, his Andral, his Rokitansky and Gross for descriptions of the macroscopic lesions as seen by these keen observers and recorded according to the fashion of the time. But the appearances themselves never grow old, and we may indeed hope that these pathologic reports of today may take their place in the library as works of reference scarcely inferior to any of their class.

**Text-Book of Medical and Surgical Gynecology.** For the Use of Students and Practitioners. By R. W. GARRETT, M.A., M.D. Containing over 100 illustrations. Kingston, Ontario, 1897. J. A. Carveth and Company, Medical Publishers, Toronto, Canada. Pages 419.

This is a condensed manual of gynecology, having few sins of commission and few of omission. It contains the essentials of gynecology as now taught and practiced. The size of the work forbids extended quotations or lengthy citations, but the student will find it fairly up to date.

## SOCIETY NEWS.

**Chicago Pathological Society.**—The annual address before the Chicago Pathological Society, December 3, will be delivered by George M. Sternberg, Surgeon-General of the United States Army. The subject of the address will be "Yellow Fever; Its Etiology and Pathology."

**Southern Surgical and Gynecological Association.**—The following officers have been elected for the ensuing year: President, Dr. Richard Douglas, Nashville, Tenn.; Vice-Presidents, Dr. H. H. Mudd, St. Louis, Mo., and Dr. Jas. A. Goggans, Alexander City, Ala.; Secretary, Dr. W. E. B. Davis, Birmingham, Ala.; Treasurer, Dr. A. M. Cartledge, Louisville, Ky. Place of meeting, Memphis, Tenn., on the second Tuesday in November, 1898.

**The Oldest Medical Society in Illinois.**—The Æsculapian Society of the Wabash Valley celebrated its fiftieth anniversary at Paris, Ill., Oct. 28, 1897. There were about seventy-five members of the profession in attendance. In the evening the local physicians gave a banquet, at which there was good music, appropriate speeches, and a good time generally. The Society is in a most flourishing condition. The Æsculapian was organized in 1846, and hence has been in existence fifty-one years, but as it did not receive its charter until 1847, the year 1897 was celebrated as the fiftieth anniversary.

## NECROLOGY.

DR. THOMAS W. EVANS, the famous American dentist, died suddenly of angina pectoris, November 14. Dr. Evans was born in Philadelphia about seventy-five years ago, and went to Paris in 1846, where he remained the friend of the United States during the Civil War, buying American securities when they dropped to very low points, thus backing up his statement that the Confederacy could not win. Dr. Evans was practically the first person to introduce gold filling for teeth into Europe. Since his advent in the French capital, Dr. Evans had attended to the teeth of most of the crowned heads of Europe, to say nothing of almost innumerable members of the royal families, excepting Queen Victoria and the Sultan of Turkey. At the time of his death he occupied the office of dentist to the royal families of England, Holland, Germany, Austria, Belgium and Russia, besides being the attendant of the majority of the most prominent families of the continent. During the course of his life he received innumerable orders and other decorations from foreign potentates. He was an intimate friend of Napoleon III., and at the time of the Franco-Prussian war organized the National Ambulance Corps. When the French communists were seeking for the Empress Eugenie to destroy her, he disguised her as a maid and aided her in her escape. In Germany he is known and loved for the services he rendered the ill-starred German Emperor Frederick when, as the Crown Prince, he was battling for his life against the inroads of the disease to which he finally succumbed. The Prince was at San Remo dangerously ill with the disease of the throat which baffled the skill of the most learned scientists of all Europe, when Dr. Evans was called into consultation. Sir Morrel Mackenzie, the eminent English surgeon, and Dr. Bergmann of Berlin, were in charge of the distinguished patient. They decided on an operation to remove the growth and he was present. At this time the old Emperor William was also lying sick unto death. It was known that his death was a matter of only a few days' time, and also that unless the cancer could be removed from the throat of the Prince he would precede his father to the grave. A tracheotomy was performed and the bleeding which followed could not be stopped by all the efforts of the physicians in attendance. Dr. Evans hurried to a silversmith's shop, and with his own hands constructed a silver tube, which was fitted into the wound and stopped the bleeding. Twenty-four hours later Emperor William died and Frederick lived for thirty days as Emperor of Germany. Dr. Evans is estimated to be worth $30,000,000. He left no children. He founded the Home for Young American Women in Paris, which has proved a veritable godsend to many an American girl studying art in Paris.

JAMES G. SLOAN, M.D., Jefferson 1862 and Georgetown Medical College, D. C., 1869, died at Monongahela City, Pa., November 2, aged 56 years. He served in the ranks throughout the civil war, having enlisted as a private in a Pennsylvania regiment immediately after his first graduation. Afterward he was four years in the land office bureau of the Department of the Interior, Washington, and in 1896 became a member of the Pennsylvania Legislature, in which position he remained until his death.

JAMES CAREY THOMAS, M.D., University of Maryland, 1854, for many years a trustee of the Johns Hopkins University, author of several medical works and well known as a lecturer, died in Baltimore on the evening of November 9. His wife, who died several years ago, joined him in his philanthropic works; both were earnest workers in the Society of Friends and their daughter, one of the immediate survivors, is president of Bryn Mawr College, Philadelphia, as well as a trustee of Cornell University. Dr. Thomas was 64 years old.

GEORGE O. BUTLER, M.D., Cleveland, Ohio, of heart trouble, November 4, aged 64 years. Dr. Butler was graduated from Western Reserve Medical College in 1854. He practiced with his preceptor for one year, and then in West Virginia for a somewhat longer period, then in Cleveland. In 1862 he was appointed surgeon of the One Hundred and Third Ohio Volunteer Infantry. After the war he resumed his practice in Cleveland, and near Rock's Corners. Since 1872 he has been a member of the Northern Ohio Medical Society, and in 1868 was one of the organizers of the old Cleveland Academy of Medicine. In 1885 he was appointed a member of the United States Pension Examining Board of Surgeons, and was for three years the secretary of the board.

S. F. FORBES, M.D., of Toledo, Ohio, died at Sorocco, N. M. ——Dr. Hughes, late of Carmarthen, father of the Rev. Hugh Price Hughes of London, died at Barry, November 3.

## PUBLIC HEALTH.

**Bubonic Plague Raging in Many Bombay Districts.**—The bubonic plague is raging in the districts of Poona, Sholapur and Surat. It has also appeared at Kotri, near Karachi, in the Sinde district and at Jand-Kawal, in the Julundun district. Near Hardwar a colony of monkeys has been attacked by the disease. The local authorities are trapping and isolating the diseased animals.

**Vital Statistics of New Jersey.**—The State Bureau of Vital Statistics of New Jersey has given out advance sheets from

their forth-coming December report for the year ending June 30, 1897. As compared with the preceding year there is a decrease in the number of marriages and deaths and an increase in the number of births. The totals for the two years are as follows: Year ending June 30, 1897: Marriages, 18,171; births, 31,595; deaths, 29,822. Year ending June 30, 1896: Marriages, 18,370; births, 31,207; deaths, 30,767. The decrease in the number of marriages is not to be attributed to the passage of the marriage-license law, as that law did not go into effect until July 1 of this year.

A lay contemporary suggests that "On a basis of the increase of 1,773 births over the deaths in one year, it would take several centuries for New Jersey to double its present population."

**Yellow Fever.**—Since the close of our record with the dispatches of November 8, the yellow fever situation in the South has been much more favorable, the predicted fall in temperature having caused a decrease in the cases. Dispatches are as follows: November 9, New Orleans, 4 deaths; Mobile, 2 deaths; Whistler, 16 new cases. November 10, New Orleans, 4 deaths; Mobile, 3 new cases and 2 deaths. November 11, New Orleans, 6 deaths; Mobile, 1 new case; Edwards, Miss., 1 new case. November 12, New Orleans, 1 death; Mobile, 1 death. November 15, New Orleans, 11 new cases and 2 deaths; Montgomery, Ala., 2 new cases and four "suspicious" cases; Scranton, Miss., 10 new cases and 1 death; Clinton, 1 new case; Edwards, 3 new cases and 1 death; Mobile, 3 new cases; Pensacola, Fla., 1 death. The increase noted in the dispatches of the 15th is due to several days of hot weather that have prevailed. Quarantines are being raised through most of the districts previously quarantined, and many of the schools have been opened.

## MISCELLANY.

**The French Congress of Neurologists and Alienists** next year will discuss the psychic disturbances consecutive to operations, the rôle of inflammation of the arteries in the pathology of the nervous system, and transient insanity from a medico-legal point of view.

**Bullets of Paper with an Aluminium Cover** suggested by a French officer, have been found equally effective in wounding the enemy and placing him *hors de combat*, while the after-consequences of the wounds are far less serious than with the bullets now in use. The precision of the shot is not affected, and the bullet cuts a clean hole that tends to heal rapidly.

**Data Wanted.**—R. G. Curtin, M.D., 22 S. Eighteenth Street Philadelphia, Pa., and F. S. Pearce, M.D., are collecting data of the military and naval services of the medical graduates of the University of Pennsylvania in the Revolutionary War, the Mexican War, and the late Rebellion. Any information as to dates or references of said services will be appreciated if sent to the above address.

**Strangulated Hernia.**—Heaton (*British Medical Journal*, Sept. 25, 1897, p. 799) reports two cases of strangulated inguinal hernia in each of which the symptoms of acute intestinal obstruction remaining unrelieved after apparent reduction, herniotomy was resorted to with a successful result in both cases. In the one case it was found that a small knuckle of intestine, too small to be felt through the abdominal parietes remained still unreduced. The other was a typical example of reduction *en masse*.

**Effect of Calomel, etc., on the Secretion of Bile.**—Doyon and Dufour report as the result of months of experimental research on dogs with biliary fistulas, that oil has a negative effect on the secretion of bile, calomel a decided inhibitory effect, and salicylate of sodium, while it increases the quantity of the bile secreted, yet the density is less; the salts, etc., are reduced below the normal amount. The only active cholagogue is bile itself, the ingestion of which is always followed by a considerable hyperexcretion of bile.—*Presse Méd.*, October 13, from *Arch. de Phys.*

**New Sources and Vehicles of Malarial Infection.**—Dr. S. Pulverenti of Naples, announces that he has established the fact that malaria can be transmitted by the dust of cereals, especially wheat, and by the dust of textile plants, flax, hemp, etc., even years after they have been macerated. Malaria can thus be contracted without either heat, moisture or soil.—*Gazzetta degli Osp. e delle Clin.*, October 3.

**An Anthropometric Bureau** is among the plans of the Greater New York police commissioners, for the physical care of policemen and the extension of the Bertillon system. Policemen, it is claimed, after a successful civil service examination are without care to keep themselves in proper physical condition. "It is not necessary to argue" says a report, "that the value of the services of 6,000 men in this department depends very considerably upon their physical condition. Many of them soon become partially incapacitated on account of obesity, weaknesses peculiar to the feet and legs, chronic constipation, gastric troubles, and other maladies which can be aided if not entirely cured or prevented by careful physical training. The second department of the proposed Bureau has to all intents and purposes already been adopted, but is in need of extension. In Paris, under the superintendency of Bertillon himself, such a bureau employs more than one hundred men who have codified stigmata or individual variations of more than a million criminals. For the proper carrying on of both branches of the work an additional police surgeon is thought to be required. Our good friends of the Empire City are often very practical.

**New York and London.**—According to a dispatch to the *New York Sun*, the London local government journal makes an interesting comparison between Greater New York and the English metropolis. It asserts that Greater London is double the size of New York, has double the population, more than twice the number of police and only half as many firemen. London has four times as many scholars in her public schools, but only 25 per cent. more teachers; she has more public libraries, but not so many in proportion to her population; she has half as many hospitals as New York and nine more cemeteries. In New York there is a church or chapel for every 3,000 persons and in London one in 4,000. The London debt is 35 per cent. lighter for each taxpayer. In New York, organized charity relieves one family in 200, but in London one family in forty-five is maintained by the ratepayers. In the matter of crime, particularly housebreaking and burglary, London is better off. If the crimes in London under these heads were in the same proportion as in New York, there would be 2,000 instances a year, whereas there are only about one hundred more than in New York.

**A New Method for the Radical Cure of Inguinal Hernia.**—Fowler (*Annals of Surgery*, Vol. xxvi, No. 5, p. 603) thus describes the steps of a new operation for the radical cure of hernia, of which the special features are intraperitoneal displacement of the spermatic cord and typical obliteration of the internal ring and the inguinal canal: 1. A curved skin incision which furnishes easy access to all the parts involved in inguinal hernia. 2. Splitting the anterior wall of the inguinal canal from the external to the internal ring. 3. Isolation of the cord and the sac together with the surrounding parts, after which these are separated from each other and cleared well up to the internal ring. 4. Double ligature of the deep epigastric artery, with sufficient space between the ligatures to permit of an incision. 5. Cutting away of the neck of the sac and incision of the posterior wall of the inguinal canal and Hesselbach's triangle. 6. The cord is transplaced into the peritoneal cavity from the site of the internal ring to a point below the level of the pubic bone. 7. Broad approximation and suturing of the peritoneum and tranversalis fascia in front of the cord for the space

mentioned. 8. Obliteration of the internal ring and inguinal canal by accurate suturing, and strengthening of Hesselbach's triangle and the new point of emergence of the cord by outward displacement of the pubic attachment of the corresponding rectus muscle.

**Medical Expert Testimony.**—The JOURNAL has received advance sheets of a paper by Clark Bell, Esq., on the proposed reform in the law of expert testimony in New York State. It includes quotations from the remarks of the Hon. John W. Goff, on the subject at the last December dinner of the Medico-Legal Society, criticising the present system, and also communications on the subject from various legal lights, and concludes with a draft of a proposed law which is offered for criticism. The substance of this is as follows:

*Section 1.*—When in any civil or criminal proceeding it appears that the testimony of skilled experts may aid in determining any issues of fact, any justice of the court in which such proceeding is pending may upon the application of either party and after reasonable notice and hearing, appoint one or more skilled experts and make such reasonable examinations and tests in relation and the personal thing or subject matter involved, as either party may request.

*Section 2.*—Such expert may be examined as a witness at the trial by either party, or the court, and shall receive for his services and for his attendance at court a reasonable sum, to be fixed by the court and paid by the party making the application and be taxed in his costs if he recover.

Judges have heretofore indulged in discrediting expert testimony while the lawyers have had the selection of experts to themselves. If this selection is given to the judges as in this proposed law, it is to be hoped that they will not discredit themselves in their choice and afterward abuse expert testimony.

**The Celluloid Bandage.**—The *modus operandi* of applying this bandage is the following: Sheet celluloid is cut into small pieces and dissolved in a close-stoppered bottle in acetone, enough of the fluid being used to rise four times as high in the bottle as the celluloid. This solution of celluloid is rubbed into each layer of the gauze or crinolin bandage or jacket, an ordinary kid glove being worn for the purpose, as the celluloid otherwise dries on the skin and can only be washed off by acetone. For a jacket at least ten layers are necessary; for a bandage from four to six layers, according to the strength required. The outer layer is smeared with a coating of celluloid, which forms, when dry, a highly polished surface. It takes three or four hours for a celluloid bandage to dry. That is considerably longer than is the case if plaster-of-paris is used. In order to permit of ventilation, small holes may be punctured in the jacket wherever necessary. Surgeons who have experimented with celluloid as a substitute for plaster-of-paris in bandages report that the weight of such a bandage is less than one-fourth that of a plaster-of-paris one, and less than half that of one stiffened with water glass. It is said to be not very expensive. According to Landerer, a jacket should not cost more than $1.50, which is no real objection to its use when one considers that, if well made, it will last for months and presents the further advantage of a smooth surface readily cleaned, and is impervious to urine and other discharges.

**Carcinoma of the Uterus.**—In a paper read before the Philadelphia Obstetrical Society, Fisher (*American Gynecological and Obstetrical Journal*, Vol. xi, No. 5. p. 563) maintained that carcinoma of the uterus is at first a local disease and in this stage amenable to radical surgical treatment. Two erroneous popular notions lead to postponement of pelvic examination and are responsible for the vast majority of deaths from this disease: the one, almost universally entertained by the laity, is that pain is an essential symptom of carcinoma; and the other, held by the community at large, including the great mass of general practitioners, is that a typical hemorrhage during the menopause is physiologic. The diagnosis, when the patient first presents herself to the physician, is readily made in at least 90 per cent. of cases. In the order of their importance, hemorrhage, offensive discharge and pain are the three cardinal symptoms of the disease and the presence of one or more of these, in a woman of advanced years especially, should induce the physician to insist upon a local examination as the price of his further professional attendance.

## Hospitals.

THE cornerstone of the new St. Anthony's Hospital, Douglas Boulevard and West Nineteenth Street, Chicago, was laid November 7. The hospital will be 114 by 50 feet, four stories in height, fire proof, and is of brick and buff Bedford stone, in the style of the German renaissance.

## Washington.

HEALTH OF THE CITY.—The report of Health Officer Woodward for the week ended November 6, shows the total number of deaths to have been 85. Of these 51 were white and 34 colored. The principal causes of death were, nervous diseases, 9; pulmonary, 19; typhoid fever, 3; diphtheria, 5; whooping-cough, 1. During the week 24 cases of diphtheria and 5 of scarlet fever were reported.

SOUTH WASHINGTON DISPENSARY.—At the recent meeting of the board of directors of the South Washington Dispensary, the following officers were elected to serve for the ensuing year: President, Dr. Henry Alfred Robbins; vice-president, Dr. A. L. Stavley; secretary, Dr. G. T. Howland; treasurer, Dr. L. B. French. The annual report was submitted and showed the hospital to be doing excellent work.

THE MEDICAL AND SURGICAL SOCIETY.—At the annual meeting of this Society recently held, the following officers were elected: President, Dr. Llewellyn Elliot; vice president, Dr. W. P. C. Hazen; secretary and treasurer, Dr. Elmer Sotheron; assistant secretary, Dr. Johnson Eliot; executive committee, Drs. Vincent, Mayfield, Morgan, French and Bishop. Dr. Bishop, the retiring president, delivered a very interesting annual address. Dr. Bovee read a report as delegate to the Virginia Medical Society. Dr. Samuel C. Busey gave an interesting account of the meeting of the British Medical Association at Montreal and Dr. E. L. Morgan reported a case of "Obstruction of the Bowel from Carcinoma," which was discussed by Drs. W. P. Carr, Bowen, Busey, Mayfield and Atkinson.

MEDICAL SOCIETY.—At the meeting of the Society held on the 3d instant, Dr. W. H. Fox read the essay of the evening, entitled "Congenital Anophthalmus," Dr. Lamb presented a case of obstruction of the bile ducts and Dr. Thompson reported a case of malignant disease of the intestines.

WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.—The 269th meeting of the Society was held on the 5th instant at the residence of Dr. Bowen. Dr. Joseph Taber Johnson reported twelve cases of pus in the pelvis operated upon per vaginam, and commented upon the relative advantages of the various methods of operation. The subject was discussed by Drs. Fry, Thompson, Bovee, Stone and H. L. E. Johnson.

TO PREVENT HOSPITAL AND DISPENSARY ABUSES.—The Medical Association of the District of Columbia has taken a very positive and commendable stand in the matter of hospital and dispensary abuses now existing, and at the special meeting of the Association held on the 9th instant, Dr. Samuel C. Busey, chairman of the committee appointed to regulate this matter, read the following report with resolutions, which was unanimously adopted:

WHEREAS, Six months have elapsed since the recommendations of the committee on hospital and dispensary abuses have been adopted as amendments to the regulations of the Medical Association of the District of Columbia; and

WHEREAS, The secretary was instructed, May 11, 1897, to transmit a copy of these rules to all the hospital and dispensary authorities in this city, be it

*Resolved*, That the standing committee institute an immediate inquiry as to what institutions have signified a willingness to abide by these regulations, and to notify the members of the attending staff of the various hospitals and dispensaries who are at the same time members of this Association, that unless the rules adopted May 11, 1897, are complied with on or before Jan. 1, 1898, such members shall be deemed guilty of violating the regulations of this Association, and shall be liable to such discipline as the members of the Association may direct.

As a result of this action, if the standing committee and the individual members do their duty in this important matter, hospital and dispensary abuses in the District of Columbia will very shortly be a thing of the past.

## Denver.

DENVER AND ARAPAHOE COUNTY MEDICAL SOCIEY.—A symposium on typhoid fever was the scientific program at the last meeting of this Society, October 9. Dr. W. C. Mitchell presented a summary of forty-five cases in which he applied Widal's test. In three cases the diagnosis was settled at the time the test was made; in the remaining forty-two cases the diagnosis was problematic. Twenty nine of these cases ran a typhoid course, twenty five of which gave a positive reaction; the remaining five gave a negative reaction. Fifteen of the cases believed to be non typhoid gave a negative reaction. In one case the diagnosis was doubtful and the reaction was negative. The percentage of accuracy of positive reaction was 82 and the negative 100. He dwelt also upon the disadvantages of the test, which are: 1. In a small percentage of cases of undoubted typhoid fever the reaction was negative. 2. The reaction does not appear within a certain definite time, and may be even delayed until convalescence has set in. 3. Owing to the fact that the agglutinating power of the blood may remain for months or even years after an attack of typhoid fever, the examination may reveal a positive reaction which may have no connection with the present illness. Dr. W. J. Rothwell took up the antiseptic treatment of typhoid and reviewed the various drugs used. He thinks that we have been acquiring a gradual immunity to typhoid, and that the disease has become of a milder type. Dr. H. B. Whitney discussed the Woodbridge treatment, which he used in a large number of cases in a somewhat modified form. He has had good results whenever the treatment was instituted early in the disease, but does not consider it a specific. Dr. E. R. Axtell reviewed the Brand treatment and exhibited several temperature charts which beautifully illustrated the effect of the baths. He emphasized the importance of attending to minor details of the bath. Dr. J. N. Hall reported twenty five cases of typhoid in whom the Brand method was used, with three deaths. Dr. Fisk does not approve of any one treatment as a panacea. He believes in elimination and uses calomel in the early stages of the disease. He reported a case in which the Widal test showed a positive reaction, yet the disease was not typhoid. Dr. Hall presented a photograph showing how to demonstrate to students a palpable tumor in the abdomen in such a way that there should be no doubt left as to whether the students felt it. After getting the mass under the hand, he spreads the fingers and lets the student put his finger between the spaces, and then teacher and student feel the same body.

THE COLORADO MEDICAL LIBRARY ASSOCIATION.—Of the few medical libraries in the United States this is the only one west of Chicago. It was incorporated in June, 1893, and in this short time, owing to the zeal of the members, and especially to the interest manifested by the librarian, Mr. Dana, and the secretary of the Association, Dr. Henry Sewall, the library contains about 10,000 volumes of select works, monographs and periodicals. The library spreads before the reading public 170 periodicals. The incorporators of the Association were Drs. J. T. Eskridge and Henry Sewall and Mr. J. C. Dana. The present officers are T. H. Hawkins, president; Henry Sewall, secretary; Laura L. Liebhardt, treasurer, and J. C. Dana, librarian.

A SOUVENIR FOR THE LADIES VISITING DENVER AT THE CONVENTION OF THE AMERICAN MEDICAL ASSOCIATION IN JUNE, 1898.—At the suggestion of Dr. Spivak, the physicians' wives of Denver will probably prepare a unique souvenir. It will consist of a collection of types of physician's wives as represented in the English literature both early and modern, and will presumably bear the title of "From Physicians' Wives to Physicians' Wives about Physicians' Wives."

### CHANGE OF ADDRESS.

Collins, T. S., from Santa Monica to Los Angeles, Cal.
Collins, K. R., from Alexandria, Ind., to 63½ Whitehall St., Atlanta, Ga.
Downes, A. J., from 1525 Girard Av. to 1725 Girard Av., Philadelphia, Pa.
Ducker, J. O., from Chicago, Ill., to Louisana, Mo.
Gessner, H. B., from 1450 N. Rocheblane St. to 731 Carondelet St., New Orleans, La.
Huselton, W. S., from Allegheny to 515 Penn Av., Pittsburg, Pa.
Hamilton, J. M., from Proctor to Rutland, Vt.
Hood, T. M., from Weston to Clarksburg, W. Va.
Kerr, N., from 107 Chicago Av. to 239 N. State St., Chicago, Ill.
Mahoney, J. E., from Hyde to Highland, Wis.
Millikin, T. N., from Rogersville to Waynesburg, Pa.
Mitchell, P. S., returned from Europe to Atchison, Kan.
Macy, F. S., from Malden to 604 Main St., Medford. Mass.
Pine, O. S., from 339 N. Washington St. to Defiel Blk., St. Paul, Minn.
Richmond, S., from Bedford, Iowa, to Ravanna, Mo.
Rudderow, F., from 423 S. 15th St. to 1832 Arch St., Philadelphia, Pa.
Stellwagon, T. C., from 1416 Chestnut to 1328 Chestnut, Philadelphia.
Sheldon, M. B., from Belvidere, Ill., to Geneva Lake, Wis.
Toron, M., from 278 Wells St to 725 E. Belmont Av., Chicago, Ill.
Wilmer, W. H., from 1330 New York Av. to 1610 I Av. N. W., Washington, D. C.
Whitmore, B. T., from Chicago, Ill., to 90 Maiden Lane, New York, N.Y.

### LETTERS RECEIVED.

Alma Sanitarium Co., Alma, Mich.; American Electric Vehicle Co., Chicago, Ill.; Anthony, R. S., Claremont, S. Africa; Archives Cliniques de Bordeaux, Bordeaux, France.
Ball, M. V., Philadelphia, Pa.; Belfield, W. T., Chicago, Ill.; Benziger Brothers, New York, N. Y.; Bierring, Walter L., Iowa City, Iowa; Blech, Gustavus, Detroit, Mich.; Brannon, C. S., Chicago, Ill.; Braymer, O. W., Camden, N. J.
Crothers, T. D., Hartford, Conn.; Cutter, E., New York, N. Y.; Cuzner, A. T., Gilmore, Fla.
Dean, G. E., Scranton, Pa.; Dennis, Frederic S., New York, N. Y.; Drysdale, W., & Co., Montreal, Can.
Eagleson, J. B., Seattle, Wash.
Faris, Alex. A., Hickman, Ky.; Faries, Randolph, Philadelphia, Pa.; Fite, B. W., Resaca, Ga.; Fisher, J. C., Elmira, N. Y.; Frazer, W. A., Lyle, Minn.; Frazer, E. B., Wilmington, Del.
Garber, J. B., Dunkirk, Ind.; Gibb, Joseph S., Philadelphia, Pa.; Glock & Beck (2), Columbus, Ohio; Graham, H. G., Chicago, Ill.
Haskin, H. P., Williamsport, Pa.; Hemmeter, J. C., Baltimore, Md.; Hill, R. J., (2) Minneapolis, Minn.; Holland, J. W., (2) Philadelphia, Pa
Imperial Granum Co., New Haven, Conn.
Jackson, Edward, Philadelphia, Pa.; Johnson, C. B., Champaign, Ill.
Kieffer, A. R., St Louis, Mo.; Knopf, S. A., New York, N. Y.; Koechl, Victor, & Co., New York, N. Y.
Larrabee, J. A., Louisville, Ky.; Lewis, LeRoy, Auburn, N. Y.; Love I. N., St. Louis, Mo.
Maltine Mfg. Co., New York, N. Y.; Matthews, J. Palmer, Carlinville, Ill.; Mayes, O. B., Thompson, Mo.; McCall, James H., Huntingdon, Tenn.; McIntyre, M. A., London, Ontario, Canada; McReynolds, John O., Dallas, Texas; Milliken, John T., & Co., St. Louis, Mo.; Mitchell, R. W., Memphis, Tenn.; Mogk, Wm. A., Ann Arbor, Mich.; Moore, Dwight S., Jamestown, N. D.; Mulford, H. K., Co., Philadelphia, Pa.
Oxford Retreat, Oxford, Ohio.
Palisade Manufacturing Co., Yonkers, N. Y.; Parmele, Chas. Roome, St. Louis, Mo.; Porter, John L., Chicago, Ill.; Porter, Joseph Y., Pensacola, Fla.; Porter, William, St. Louis, Mo.
Quimby, I. N., Jersey City, N. J.
Rice, J. H., & Friedmann Co., Milwaukee, Wis.; Rea, Charles, York, Pa.; Reed, Robert J., Wheeling, W. Va.
Saunders, W. B., Philadelphia, Pa.; Smith, J. W. C., Benton, Miss.; Snell, Charles E., Brooklyn, N. Y.; Spivak, C. D., (2) Denver, Colo.; Stearns, F., & Co. (2) Detroit, Mich.; Stuver, E., Rawlins, Wyo.
The Kuy Scheerer Co., New York, N. Y.; Thomason, H. D., Albion, Mich.; Townsend, W. R., New York, N. Y.; Turner, Charles A., Osceola, Ark.
Universal Medical Insignia Mfg. Co., Indianapolis, Ind.
Wingate, U. O. B., Milwaukee, Wis.; Woodman, M. S., West Lebanon, N. H.

## THE PUBLIC SERVICES.

**Assistant Surgeons.**—The following, having met the requirements of the Army Medical board, will soon be commissioned Assistant Surgeons by the President: George Rauchfuss of New York, Bernard S. Higley of Ohio, Henry Page of Maryland, Bailey K. Ashford of Washington, Henry H. Weber of Massachusetts and Jere B. Clayton of California. These young men will be sent to the Army Medical School in Washington, D. C., for a course of instruction before being assigned to regiments. There will still be one vacancy in the Medical Corps, and two more will occur this month by the retirements of Lieut.-Col. Waters and Major Corson. No further examinations will be held for appointments to the Corps until next spring.

**Army Changes.** Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from November 6 to 12, 1897.

Capt. Isaac P. Ware, Asst. Surgeon (Ft. Grant, Ariz.), is granted leave of absence for one month.
Capt Robert. S. Woodson, Asst. Surgeon (Jackson Bks., La.), is granted leave of absence for two months, to take effect when his services can be spared.
Major Louis W. Crampton (Ft. Meade, S. Dak.), is granted leave of absence for two months and twenty days, to take effect when, in the opinion of his department commander, his services can be spared.

**Navy Changes.** Changes in the Medical Corps of the U. S. Navy for the week ending November 13. 1897.

Surgeon James R. Waggener, relieved from the "Marion" and ordered to resume duties at Mare Island navy yard.
Surgeon C. Biddle, detached from duty at the Navy Department 12th inst. and ordered to the "Newport" 13th inst.
P. A. Surgeon C. H. T. Lowndes, detached from the Washington navy yard 12th inst., and ordered to the "Newport" 13th inst.
Surgeon J. E. Gardener, detached from the "Dolphin" and ordered home on waiting orders.